



BUFFER ENHANCEMENT BUNDLE

B000BFF1

CONSERVATION STEWARDSHIP PROGRAM

Buffer Bundle #1

Conservation Practices 393: Filter Strip; 327: Conservation Cover; and 612: Tree/Shrub Establishment

APPLICABLE LAND USES: Crop (annual & mixed), Crop (perennial) and Associated Agricultural Land

RESOURCE CONCERNS ADDRESSED: Water Quality Degradation, Degraded Plant Condition, Fish/Wildlife Inadequate Habitat and/or Air Quality

BUNDLE LIFE SPAN: 15 years

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually. Applicants that choose to implement this bundle will receive additional ranking points and a higher payment rate.

Criteria

- All of the component enhancements in the required group, along with one additional component enhancement, must be adopted as shown in the table below.
- If an applicant has already adopted one or more component enhancements within a bundle, the applicant may schedule the bundle as long as the applicant is newly adopting the majority (more than 50 percent) of the component enhancements within the bundle.
- Applicants may choose to adopt a bundle on any portion of the agricultural operation and will be required to install component enhancements on all applicable acres where the bundle is adopted.
- The bundle is scheduled in the year in which all component enhancements in the bundle are applied but no later than the third fiscal year of the contract.



Documentation and Implementation Requirements

Participant will:

- ☐ Follow the documentation and implementation requirements outlined in the respective enhancement job sheets to document the implementation of each component enhancement in the bundle.
- ☐ Prior to and after implementation, document the planned amount, fields, applied amount and the year each component enhancement in the bundle is applied:

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Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
DO ALL ENHANCMENTS IN THIS GROUP				
E393118Z				
E327136Z1				
E612133X1				
PICK ONE FROM THIS GROUP				
E612130Z				
E612136Z				

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the bundle and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



BUFFER ENHANCEMENT BUNDLE

B000BFF2

CONSERVATION STEWARDSHIP PROGRAM

Buffer Bundle #2

Conservation Practices 393: Filter Strip; 327: Conservation Cover; and 612: Tree/Shrub Establishment

APPLICABLE LAND USES: Crop (annual & mixed), Crop (perennial) and Associated Agricultural Land

RESOURCE CONCERNS ADDRESSED: Water Quality Degradation, Degraded Plant Condition, Fish/Wildlife Inadequate Habitat and/or Air Quality

BUNDLE LIFE SPAN: 15 years

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually. Applicants that choose to implement this bundle will receive additional ranking points and a higher payment rate.

Criteria

- All of the component enhancements in the required group, along with one additional component enhancement, must be adopted as shown in the table below.
- If an applicant has already adopted one or more component enhancements within a bundle, the applicant may schedule the bundle as long as the applicant is newly adopting the majority (more than 50 percent) of the component enhancements within the bundle.
- Applicants may choose to adopt a bundle on any portion of the agricultural operation and will be required to install component enhancements on all applicable acres where the bundle is adopted.
- The bundle is scheduled in the year in which all component enhancements in the bundle are applied but no later than the third fiscal year of the contract.



Documentation and Implementation Requirements

Participant will:

- ☐ Follow the documentation and implementation requirements outlined in the respective enhancement job sheets to document the implementation of each component enhancement in the bundle.
- ☐ Prior to and after implementation, document the planned amount, fields, applied amount and the year each component enhancement in the bundle is applied:

**CONSERVATION
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Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
DO ALL ENHANCMENTS IN THIS GROUP				
E3931126Z				
E327137Z				
E612133X1				
PICK ONE FROM THIS GROUP				
E612130Z				
E612136Z				

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the bundle and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



FOREST ENHANCEMENT BUNDLE

B000FST1

CONSERVATION STEWARDSHIP PROGRAM

Forest Bundle #1

Conservation Practices 666: Forest Stand Improvement and 612: Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERNS ADDRESSED: Soil Quality Degradation, Degraded Plant Condition, Fish/Wildlife Inadequate Habitat, and Insufficient Water

BUNDLE LIFE SPAN: 15 years

Enhancement Description

Addresses forest management sites that are not adapted to natural fire disturbances.

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually. Applicants that choose to implement this bundle will receive additional ranking points and a higher payment rate.

Criteria

- All of the component enhancements in the required group must be adopted as shown in the table below.
- If an applicant has already adopted one or more component enhancements within a bundle, the applicant may schedule the bundle as long as the applicant is newly adopting the majority (more than 50 percent) of the component enhancements within the bundle.
- Applicants may choose to adopt a bundle on any portion of the agricultural operation and will be required to install component enhancements on all applicable acres where the bundle is adopted.
- The bundle is scheduled in the year in which all component enhancements in the bundle are applied but no later than the third fiscal year of the contract.



Documentation and Implementation Requirements

Participant will:

- ☐ Follow the documentation and implementation requirements outlined in the respective enhancement job sheets to document the implementation of each component enhancement in the bundle.
- ☐ Prior to and after implementation, document the planned amount, fields, applied amount and the year each component enhancement in the bundle is applied:

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Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E666106Z2				
E666132Z1				
E666137Z1				
E612137Z				
E666115Z2				

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the bundle and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E327136Z2

CONSERVATION STEWARDSHIP PROGRAM

Establish Monarch butterfly habitat

Conservation Practice 327: Conservation Cover

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Seed or plug milkweed (*Asclepias* spp.), and high-value monarch butterfly nectar plants on marginal cropland, field borders, contour buffer strips, and similar areas.

Criteria

- Habitat areas must be at least 0.5 acres.
- Establish and maintain habitat for monarch butterflies as described below:

A. Monarch butterflies

- Lists of larval host plants and nectar plants suitable for monarch butterfly habitat are provided in the NRCS Field Office Technical Guide (FOTG).
- A grass component to a monarch habitat planting is commonly needed for ecological stability, weed control, and fuel for prescribed burning. The FOTG provides information on the grass/forb ratio for monarch habitat plantings.
- To provide food (nectar and pollen) for adult monarch butterflies, at least 60% of the forb seeds (pure live seed) in the mix shall be from the monarch butterfly planting list (FOTG). Milkweed seeds are included in meeting the 60% minimum because milkweeds



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are excellent nectar plants. The FOTG provides information on the required number of forb species per bloom period (early, mid, or late season) for monarch habitat plantings. Bloom periods are to coincide with monarch presence in the area.

- To provide food for monarch butterfly larvae, plantings shall include at least one species of milkweed (*Asclepias* spp.) from the FOTG monarch butterfly planting list. All milkweed species used in the mix must be from this list and shall represent at least 1.5% of the total seeds in the mix. The total seeds include pure live seed from both grass and forbs. Tropical milkweed (*Asclepias curassavica*) shall not be planted.

Waiver: In some regions, a commercial source of native Asclepias species is limited or not available. In these situations, the NRCS State Conservationist may apply for a waiver, and only require that plantings include monarch nectaring species. In this situation, milkweed seed or plugs are still encouraged to be planted, if possible. If such a waiver is granted, the mix will result in at least 80% of the seed being from the state's monarch nectaring plant list.

- Any other use of the monarch butterfly habitat area must not compromise its intended purpose.
- If a Monarch Butterfly Wildlife Habitat Evaluation Guide (WHEG) is available for use in the state, a minimum planned Monarch WHEG score of "0.60 will be obtained for the planted area.

B. Planting criteria for monarch butterfly habitat

- Site selection should consider existing weed pressures and available methods of control. Delay planting and conduct an additional growing season of weed control if high weed pressure requires aggressive treatment.
- Site preparation and plant establishment shall be accomplished according to the state's specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327).
- Successful establishment is when the planting is providing at least 80 percent soil cover, visually estimated, and that the resultant cover consists of at least 500



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milkweed plants per acre (approx. 1 stem per each 100-sq. ft.), and successful establishment of at least two targeted nectar plants per bloom period when monarchs are present in the state. A milkweed plant is defined as a single stem emerging from the ground.

- Insecticides should not be used in the habitat planting area.
- Herbicides are allowed during site preparation (prior to planting) when it is necessary to eliminate competing weeds from a planting area in order for nectar and pollen producing plants to establish.
- After a monarch habitat enhancement has been planted, herbicides may be spot-sprayed to remove broad-leaf weeds, or grass-selective herbicides may be applied to larger areas to eliminate persistent weedy grasses. Similarly, in the first year post-planting, the entire site may be mowed 8 to 10 inches high to reduce annual or biennial weeds that persist (site should be mowed just before dominant annual weeds flower).

C. Operation and maintenance for monarch butterfly habitat

- Management and/or maintenance activities such as mowing, haying, burning, or grazing shall be conducted outside of the season when monarch larvae or adults are present.
- Insecticides should not be used in the habitat planting area.
- The planted habitat areas must be regularly inspected for invasive and/or noxious plants or other plants that may compromise the purpose of this enhancement. Undesirable species should be controlled using the least damaging method, for example, spot-spraying with herbicide or physical removal of individual plants.



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Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide a map showing the location of proposed habitat areas with notes on land use adjacent to proposed habitat areas to discuss with NRCS staff.
- ☐ During implementation, purchase specified seed mix or plant materials that meets monarch-specific seeding or planting requirements provided by NRCS.
- ☐ During implementation, follow habitat establishment guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327).
- ☐ After implementation, provide a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred.
- ☐ After implementation, provide photo documentation of monarch habitat areas.

NRCS will:

- ☐ Prior to implementation, assess habitat condition using a monarch Wildlife Habitat Evaluation Guide (WHEG) to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. **Benchmark WHEG score = _____ Planned Post Implementation WHEG score = _____**
- ☐ Prior to implementation, provide participant with suitable larval host plants and nectar plants lists
- ☐ Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327).
- ☐ Prior to implementation, provide participant with a recommended seed mix and planting specifications per above criteria (grass/forb ratio; number of forb species per bloom period for monarch habitat plantings)
- ☐ After implementation, verify successful establishment (per planting criteria above).



NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

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Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E328106Z3

CONSERVATION STEWARDSHIP PROGRAM

Conservation crop rotation on recently converted CRP grass/legume cover for soil organic matter improvement

Conservation Practice 328: Conservation crop rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Implement a crop rotation management system on crop land acres that have recently converted from CRP grass/legume conservation cover to annual planted crops. The crop rotation adds diversity to the system; keeps a living root growing; and is managed to minimize soil chemical, physical and biological disturbance and maintain residue cover on the surface. The rotation includes crops and/or cover crops representing 3 of the 4 crop types during the planned crop sequence: warm season grass (WSG), warm season broadleaf (WSB), cool season grass (CSG), or cool season broadleaf (CSB). The crop rotation will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the SCI. Crop rotation minimizes disturbance and reduces soil erosion from wind to below soil tolerance (T) level. The current NRCS wind and water erosion prediction technologies must be used to document the rotation, STIR and SCI calculations. *This enhancement is limited to acres where the conversion event took place not more than 2 years prior. Enhancement not applicable on hayland.

Criteria

- This enhancement is limited to acres where the conversion of CRP grass/legume conservation cover to annual crops took place not more than 2 years prior to enrollment in CSP. This enhancement is not applicable on hayland.



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- Crops must be grown in a planned sequence as outlined in plan. The crop rotation must include a minimum of four different crops. For purposes of these criteria a cover crop is considered a different crop.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- Grow crops that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index. (management SCI value)
- The crop rotation includes at least 2 years of high residue crops and/or cover crops per 3 years of the rotation. **(See STATE list of high residue crops)**
- For crop diversity, the planned crop sequence of at least 4 different crops should contain at least 3 different crop types; for example a mix of the following: warm season grass; warm season broadleaf; cool season grass; cool season broadleaf.
- Leave crop residue on the soil surface throughout the year.
- Keep a living root system established as much as practical for the given soil, cropping system, and climate area. Maximize root growth periods by planting the next crop or cover crop as soon as practical after the harvest and/or utilize perennial crops in the rotation. Aim to have living roots at least 90% of available growing days. **(See STATE provided guidance of options to maximize living root systems in local climate and cropping systems; determine available growing days and period of no growth, such as frozen periods in the north)**. Show before and after management files from current NRCS wind and water erosion prediction technologies to document benchmark and planned crop rotation to show increase in living root periods.
- Minimize all types of soil disturbance. No more than one crop-year in the rotation will have a Soil Tillage Intensity Rating (STIR) value greater than 20 and the rotation will have a positive trending SCI.



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Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide NRCS with the current and planned crop rotation and planned field operation(s) used for each crop.

Current Management – Crop Rotation

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)	Crop Type (Warm Grass-WG, Cool Grass-CG, Warm Broadleaf-WB, Cool Broadleaf-CB)

Current Management – Field Operations

Field	Crop	Field Operation	Timing of Field Operation (month/year)

Planned Management – Crop Rotation *(Crop rotation must include at least 4 different crops from 3 of the different crop types. The rotation must also include 2 years of high residue crops and/or cover crops per 3 years of the rotation. Use STATE list of high residue crops.)*

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)	Crop Type (Warm Grass-WG, Cool Grass-CG, Warm Broadleaf-WB, Cool Broadleaf-CB)



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Planned Management – Field Operations

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- ☐ During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- ☐ During implementation, leave crop residue on the soil surface throughout the year.
- ☐ During implementation, take dated pictures with field indicated at least every 3 months to show residue or growing crops.
- ☐ After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.
- ☐ After implementation, provide for review pictures showing residue or growing crops throughout the year.

NRCS will:

- ☐ As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- ☐ Prior to implementation, verify the enhancement is planned for acres where the conversion from CRP grass/legume conservation cover to annual cropland took place no more than 2 years prior to enrollment in CSP. **Conversion Date:** _____
- ☐ Prior to implementation, verify the enhancement is not planned on hayland.

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- ☐ Prior to implementation, verify the crop rotation includes at least 2 years of high residue crops and/or cover crops per 3 years of the rotation. (Use STATE list of high residue crops)
- ☐ Prior to implementation, verify the planned crop rotation includes at least 4 different crops and contains at least 3 different crop types; for example a mix of the following: warm season grass; warm season broadleaf; cool season grass; cool season broadleaf.
Planned number of crops: _____
Planned number of crop types: _____
- ☐ Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value for each field using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.
Management SCI Value = _____ **OM subfactor value =** _____
- ☐ During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- ☐ After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to document that the applied rotation met the enhancement criteria.
Applied number of crops: _____
Applied number of crop types: _____
- ☐ After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.
Management SCI Value = _____ **OM subfactor value =** _____
- ☐ After implementation, review pictures showing residue or growing green crops throughout the year to verify the applied system meets the enhancement criteria.



NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

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Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date

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Conservation Enhancement Activity

E374144Z1

CONSERVATION STEWARDSHIP PROGRAM

Install variable frequency drive(s) on pump(s)

Conservation Practice 374: Farmstead Energy Improvement

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Inefficient Energy Use

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Install Variable Frequency Drive(s) (VFD) on Pumping Plant (Conservation Practice Standard CPS 533) with the correct sensors, on all pumps as indicated in the energy audit.

Criteria

- Implement recommendations for components of a current Type 2 energy audit performed in accordance with the American Society of Agricultural and Biological Engineers (ASABE) Standard S612, Performing On-farm Energy Audits.
- Where required, certify that the replacement or retrofit system and related components or devices meet or exceed currently applicable federal, state, and local standards and guidelines.
- Components of major activities by farm enterprises defined in ASABE S612 will meet the appropriate NRCS or industry standard, such as:
 - NRCS Conservation Practice Standard Farmstead Energy Improvements (Code 374)
 - NRCS Conservation Practice Standard Pumping Plant (Code 533)
 - NRCS Conservation Practice Standard Combustion System Improvement (Code 372)



- Include written specifications describing the following site-specific details of installation:
 - The replacement or retrofit system and/or related components or devices.
 - Baseline system energy usage and potential energy savings from the implementation of this enhancement.
 - Plan view showing the location of the measures in relation to other structures or natural features, where appropriate.
 - Electrical wiring must meet the requirements of the National Electrical Code.
 - Operation and maintenance plan will be developed that is consistent with the purpose(s) of this practice, its intended life, and safety requirements.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, review current Type 2 energy audit, season of use, existing pump motor needs, and current operation.
- ☐ Prior to implementation, evaluate site specific energy alternatives and net benefit of the Variable Frequency Drive(s).
- ☐ Prior to implementation, ensure that energy utility provider has reviewed and approved location of installation on pump motor, including needs for electrical harmonic filter.
- ☐ Prior to implementation, obtain written documentation of utility approval for site with requirements for installation.
- ☐ During implementation, ensure installation meets federal National Electrical Code and any local or state codes.
- ☐ After implementation, provide documentation of installation including first season energy use for comparison to prior years (from energy audit) to NRCS for review to verify implementation of the enhancement.
- ☐ After implementation, monitor and maintain system for life time of the practice (10 years).

NRCS will:

- ☐ Prior to implementation and as needed, NRCS will provide technical assistance.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standards Farmstead Energy Improvements (Code 374), Pumping Plant (Code 533), and Combustion System Improvement (Code 372) as it relates to implementing this enhancement.
- ☐ Prior to implementation, review with producer the costs and benefits for installation of Variable Frequency Drive(s).
- ☐ Prior to implementation, develop written specifications describing site specific details of installation, including:
 - o The replacement or retrofit system and/or related components or devices.
 - o System energy usage and resulting potential energy savings from the implementation of this enhancement.



- ☐ Prior to implementation, develop, provide, and explain to the participant the operation and maintenance plan for this enhancement.
- ☐ After implementation, verify installation meets NRCS enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E381133Z

CONSERVATION
STEWARDSHIP
PROGRAM

Silvopasture for wildlife habitat (structure and composition)

Conservation Practice 381: Silvopasture Establishment

APPLICABLE LAND USE: Pasture; Forest; Associated Agricultural Land

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Establishing a combination of trees or shrubs and compatible forages on the same acreage, providing forage, shade, and/or shelter for livestock and including a purpose of enhancing wildlife habitat.

Criteria

- Tree species and forage species must be adapted to the site and compatible with the planned management of the site.
- No plants on the federal or state noxious weeds list shall be planted.
- Where trees will be added to existing pasture, site preparation should be based on existing vegetation and soil conditions. Trees will be planted at an appropriate density to allow acceptable forage production and wood products.
- If pesticides are used, label recommendations must be followed.
- Only viable, high quality and adapted planting stock or seed will be used.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.



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- Establish forage species and understory shrubs that will provide forage, browse, seed, cover, or nesting habitat for the wildlife species of concern. For additional guidance refer to NRCS Conservation Practice Standards Upland Wildlife Habitat Management (Code 645).
- Favor herbaceous seed mixes that include a diverse mix of native forbs and/or legumes to benefit wildlife including pollinators. Select species that vary in attributes such as timing of flowering, and production of leaves and fruit.
- Plantings will be protected from grazing until an adequate stand is established and meets the species specific, local standard for beginning grazing.



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Documentation Implementation Requirements

Participant will:

- ☐ Prior to implementation, select a tree or shrub species for establishment.

Tree or Shrub species	
Trees per acre	
Percent canopy cover	

- ☐ Prior to implementation, develop a grazing plan to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.
- ☐ During implementation, keep the following documentation:
 - ☐ Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - ☐ Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- ☐ After implementation, make documentation and photographs of livestock turn in/turn out grazing records for each field available for review by NRCS to verify implementation of the enhancement.
- ☐ After implementation, make the forage planting/or tree planting and grazing records available for review by NRCS to verify implementation of the enhancement.
- ☐ The State approved NRCS Wildlife Habitat Evaluation Guide (WHEG) as completed and certified by an NRCS or partner wildlife biologist. Wildlife species of concern for the silvopastoral area will be specified on the WHEG. Total WHEG score after installation will equal 0.75 or greater.

NRCS will:

- ☐ Prior to implementation, complete the State approved NRCS Wildlife Habitat Evaluation Guide (WHEG) as completed and certified by an NRCS or partner wildlife biologist when applicable. Specific pollinator species targeted will be notated on the WHEG, and total



score after implementation will equal 0.75 or greater.

WHEG score after implementation = _____

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, verify a grazing plan was developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- ☐ Prior to implementation and as needed, NRCS will provide technical assistance:
 - ☐ Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) or Tree/Shrub Site Preparation (Code 490) and Tree/Shrub Establishment (Code 612).
 - ☐ Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - ☐ Develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- ☐ During implementation, evaluate any planned changes to verify they meets the enhancement criteria.
- ☐ After implementation, verify the planned perennial planting was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E381137Z

**CONSERVATION
STEWARDSHIP
PROGRAM**

Silvopasture for wildlife habitat (cover and shelter)

Conservation Practice 381: Silvopasture Establishment

APPLICABLE LAND USE: Pasture; Forest; Associated Agricultural Land

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Establishing a combination of trees or shrubs and compatible forages on the same acreage, providing forage, shade, and/or shelter for livestock and including a purpose of enhancing wildlife cover and shelter.

Criteria

- Tree species and forage species must be adapted to the site and compatible with the planned management of the site.
- No plants on the federal or state noxious weeds list shall be planted.
- Where trees will be added to existing pasture, site preparation should be based on existing vegetation and soil conditions. Trees will be planted at an appropriate density to allow acceptable forage production and wood products.
- If pesticides are used, label recommendations must be followed.
- Only viable, high quality and adapted planting stock or seed will be used.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.



CONSERVATION STEWARDSHIP PROGRAM

- Establish forage species and understory shrubs that will provide forage, browse, seed, cover, shelter, or nesting habitat for the wildlife species of concern. For additional guidance refer to NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645).
- Favor herbaceous seed mixes that include a diverse mix of native forbs and/or legumes to benefit wildlife including pollinators.
- Plantings will be protected from grazing until an adequate stand is established and meets the species specific, local standard for beginning grazing.



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Documentation Implementation Requirements

Participant will:

- ☐ Prior to implementation, select a tree or shrub species for establishment.

Tree or Shrub species	
Trees per acre	
Percent canopy cover	

- ☐ Prior to implementation, develop a grazing plan to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occur.
- ☐ During implementation, keep the following documentation:
 - ☐ Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - ☐ Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- ☐ After implementation, make documentation and photographs of livestock turn in/turn out grazing records for each field available for review by NRCS to verify implementation of the enhancement.
- ☐ After implementation, make the forage planting/or tree planting and grazing records available for review by NRCS to verify implementation of the enhancement.
- ☐ The State approved NRCS Wildlife Habitat Evaluation Guide (WHEG) as completed and certified by an NRCS or partner wildlife biologist. Wildlife species of concern for the silvopastoral area will be specified on the WHEG. Total WHEG score after installation will equal 0.75 or greater.

NRCS will:

- ☐ Prior to implementation, complete the State approved NRCS Wildlife Habitat Evaluation Guide (WHEG) as completed and certified by an NRCS or partner wildlife biologist when applicable. Specific pollinator species targeted will be notated on the



WHEG, and total score after implementation will equal 0.75 or greater.

WHEG score after implementation =

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, verify a grazing plan was developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
 - ☐ Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) or Tree/Shrub Site Preparation (Code 490) and Tree/Shrub Establishment (Code 612).
 - ☐ Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - ☐ Develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the planned perennial planting was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E391136Z

CONSERVATION STEWARDSHIP PROGRAM

Increase riparian forest buffer width to enhance wildlife habitat

Conservation Practice 391: Riparian Forest Buffer

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 15 Years

Enhancement Description

Where an existing riparian forest buffer is located along a river, stream, pond, lake, or other waterbody, increase the diversity of native species, control invasive species, install fencing and relocate equipment operations, trails, and livestock to increase the functional width of the buffer.

Criteria

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer-width requirement, whichever is greater. Buffer width shall be increased to 60 feet and may be extended up to 180 feet or the State-allowed maximum width.
- The management plan shall consider habitat and wildlife objectives such as habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and native plant communities.
- Establish plant communities that address aquatic and terrestrial wildlife and pollinator needs and have multiple values such as habitat enhancement and nutrient uptake.
- Dominant vegetation will consist of existing, naturally regenerated, or seeded/planted trees and shrubs suited to the soil and hydrology of the site.



CONSERVATION STEWARDSHIP PROGRAM

- Use tree and shrub species that are native and non-invasive. Substitution with improved and locally accepted cultivars or purpose-specific species is allowed. For plantings and seeding, only viable, high-quality and adapted plant materials will be used.
- Favor tree and shrub species that have multiple values such as those suited for timber, nuts, fruit, florals, browse, nesting, and aesthetics.
- Periodic removal of some forest products such as high value trees, medicinal herbs, nuts, and fruits is permitted provided the buffer area is not compromised by the loss of vegetation or harvesting disturbance.
- Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species.
- Harmful plant and animal pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.
- Protect riparian vegetation until the desired plant community is well established.
- Livestock shall be controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock is present, follow a Prescribed Grazing Plan (CPS 528) and defer grazing for a minimum of two years.
- Design the expanded buffer enhancement for an expected life of at least 15 years.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

Participant will:

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CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation, prepare the planned buffer area according to the planting plan NRCS has developed with you. Refer to NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391). (NRCS will provide technical assistance.)
- ☐ Prior to implementation, select planting date, method, and density/spacing appropriate for the site and soil conditions. (NRCS will provide technical assistance.)

Planting Date	
Planting Method	
Density and spacing	

- ☐ Prior to implementation, work closely with NRCS to select diverse native and naturally regenerated or seeded/planted trees and shrubs that are adapted to your specific site and meet the wildlife habitat objectives of this enhancement.

Species	Vegetative or Rootstock	Size	Protection (tubes, mats, nets)

- ☐ During implementation, conduct planting of selected species according to dates, methods, spacing and other requirements listed in the planting plan.
- ☐ During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.
- ☐ During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.
- ☐ After Implementation, control harmful pests and vegetation to reduce competition for water, nutrients, and space and in a manner that limits effects to pollinators. Inspect and maintain tubes and protection measures regularly.
- ☐ After implementation, livestock and wildlife may need be controlled or excluded to achieve the buffer's habitat enhancement purpose. If livestock are present, follow a Prescribed Grazing Plan (Code 528) and defer grazing for a minimum of two years.



CONSERVATION STEWARDSHIP PROGRAM

Wildlife may need to be controlled during establishment of vegetative treatments. Temporary and local population control methods should be used with caution and within state and local regulations.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) to show how it relates to this enhancement.
- ☐ Prior to implementation, verify no plants on the Federal or state noxious weeds list are included in the planting list.
- ☐ Prior to implementation, NRCS will provide technical assistance on:
 - ☐ Site preparation and planting plan that meets NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) and lists the species, vegetation type, density, protection measures, and planting dates.
 - ☐ Selecting planting techniques and timing appropriate for the site and soil conditions.
 - ☐ Having the participant consider planting a more diverse number of species that help establish plant communities to address targeted aquatic and terrestrial wildlife and pollinator needs.
 - ☐ Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, review any planned changes to ensure they meet the enhancement criteria.
- ☐ During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications provided to the participant.
- ☐ After implementation, verify the vegetation was established and any protections required are being maintained according to specifications provided to the participant.



- ☐ After implementation verify livestock are controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock are present, verify a Prescribed Grazing Plan (Code 528) is being followed and grazing is being deferred for a minimum of two years.

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E449114Z5

Complete pumping plant evaluation for all pumps on a farm

Conservation Practice 449: Irrigation Water Management

**APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture;
Associated Ag Land; Farmstead**

RESOURCE CONCERN ADDRESSED: Insufficient Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Evaluation of all pumping plants on fields where activity is implemented to determine the potential to rehabilitate/replace/reconfigure pump performance to improve water delivery efficiency 10% or more. Evaluate to determine if a Variable Frequency Drive motor controller(s) is recommended and the simple payback in terms of energy savings is less than 10 years.

Criteria

- Pump test evaluation will include all irrigation pumps on fields where activity is implemented. There could be multiple pumps that are used on single or multiple fields. Minimum data necessary to complete the pumping evaluation:
 - Flow rate, instantaneous and for the season
 - Pressure at different flow rates based on partial or complete irrigations
 - Power usage to compute efficiency of the drive unit
 - Area and fields irrigated
 - Estimate of friction loss in pipelines based on pressure drop in lines during test



- Irrigation water management plan is followed and includes, as per NRCS Conservation Standard Practice, Irrigation Water Management (Code 449):
 - An irrigation system layout map showing the main pipeline(s), irrigated area, soil moisture locations and depths (if used), and soils. If water level sensors are used, show locations and number of sensors used.
 - Methods used to measure or determine the flow rate or volume of the irrigation applications.
 - Measurement records showing the amount of water used to irrigate as it comes onto the farm and goes to each field.
 - Documentation of the scientific method used for scheduling the timing and amount of irrigation applications.
 - Irrigation water management plan explains:
 - How irrigation system meets crop needs, while maximizing irrigation water efficiency.
 - Seasonal or annual planned water application volumes by crop.
 - Management allowable depletion (MAD) and depth of the managed crop root zone or water level for each crop and stage of growth.
 - Evaluation of irrigation system distribution uniformity and necessary changes to insure uniform irrigation.
 - Information on how to recognize irrigation induced erosion and how to mitigate it.
 - Indicate how data from the sensor locations and depths will be considered to make field-wide irrigation decisions.
 - Water application scheduling based on soil moisture or water level monitoring and or evapotranspiration monitoring from the weather station
 - Recordkeeping documents for the irrigator to use during operation and management



Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide NRCS with a map showing the location of all fields and pumps connected to the irrigation system.
- ☐ Prior to implementation, arrange for pump test evaluations of all irrigation pumps on fields where activity is implemented.
- ☐ Prior to implementation, acquire an irrigation water management plan meeting NRCS Conservation Practice Standard Irrigation Water Management (Code 449) requirements.
- ☐ During implementation, follow the irrigation water management plan and keep records as required by the plan.
- ☐ During implementation, have a pump test evaluation performed on all irrigation pumps on fields where activity is implemented.
- ☐ After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
 - ☐ Irrigation water management plan and records kept.
 - ☐ Pump test evaluation report(s).
 - ☐ Provide a list of any adjustments to improve system efficiency made as a result of the evaluation . Calculate the reduction of energy use based on before and after conditions. Energy savings can be reported as the average annual or seasonal energy reduction compared to previous operating conditions.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) as it relates to implementing this enhancement
- ☐ As needed, provide additional technical assistance to the participant as requested.



- ☐ After implementation, verify implementation of the irrigation water management plan, by reviewing records kept during enhancement implementation.
- ☐ After implementation, verify pump test evaluation, by reviewing evaluation report.
- ☐ After implementation, verify energy savings based on system efficiency before and after implementation of the enhancement.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E449114Z7

CONSERVATION STEWARDSHIP PROGRAM

Advanced Automated IWM – Year 2-5, soil moisture monitoring

Conservation Practice 449: Irrigation Water Management

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture

RESOURCE CONCERN ADDRESSED: Insufficient Water

PRACTICE LIFE SPAN: 1 year

Enhancement Description

Advanced automated irrigation water management using soil moisture or water level monitoring (installed as per IWM plan) with data loggers. Record keeping is such that a daily water balance is calculated and future irrigation is forecast. Equipment was bought in year one, this is monitoring for future years. Subscription service may be used as source for monitoring. System will be monitored and controlled using remote devices.

Criteria

Irrigation water management plan is followed and includes, as per NRCS Conservation Standard Practice Irrigation Water Management (Code 449):

- An irrigation system layout map showing the main pipeline(s), irrigated area, soil moisture locations and depths (if used), and soils. If water level sensors are used, show locations and number of sensors used.
- Methods used to measure or determine the flow rate or volume of the irrigation applications.
- Measurement records showing the amount of water used to irrigate as it comes onto the farm and goes to each field.



CONSERVATION STEWARDSHIP PROGRAM

- Documentation of the scientific method used for scheduling the timing and amount of irrigation applications.
- Irrigation water management plan explains:
 - How irrigation system meets crop needs, while maximizing irrigation water efficiency.
 - Seasonal or annual planned water application volumes by crop.
 - Management allowable depletion (MAD) and depth of the managed crop root zone or water level for each crop and stage of growth.
 - Evaluation of irrigation system distribution uniformity and necessary changes to insure uniform irrigation.
 - Information on how to recognize irrigation induced erosion and how to mitigate it.
 - Indicate how data from the sensor locations and depths will be considered to make field-wide irrigation decisions.
 - Water application scheduling based on soil moisture or water level monitoring and or evapotranspiration monitoring from the weather station
- Recordkeeping documents for the irrigator to use during operation and management.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, acquire an irrigation water management plan meeting NRCS Conservation Practice Standard Irrigation Water Management (449) requirements.
- ☐ During implementation, record irrigation data such as location, date, duration, and flow rate of all irrigation operations, rainfall, evapotranspiration, and soil moisture or water level data.
- ☐ After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - ☐ Irrigation water management plan and records kept
 - ☐ Changes made to address distribution uniformity deficiencies

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Irrigation Water Management (CPS 449) as it relates to implementing this enhancement
- ☐ As needed, provide additional technical assistance to the participant as requested.
- ☐ After implementation, verify implementation of the irrigation water management plan, by reviewing participant records kept during enhancement implementation.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E449114Z8

CONSERVATION STEWARDSHIP PROGRAM

Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring

Conservation Practice 449: Irrigation Water Management

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture

RESOURCE CONCERN ADDRESSED: Insufficient Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

This activity includes installing and monitoring soil moisture or water leveling equipment for advanced automated irrigation water management. The equipment includes field specific weather station data with soil moisture monitoring (installed as per IWM plan), data loggers and telemetry. Sensor stations will include a minimum of 2 sensors per site at depths appropriate for the crop and soils. If rice is the major crop, water level sensors may be substituted for the soil moisture sensors.

Monitoring will be for the entire irrigation season and data gathered will be used to predict and manage irrigation water on crop grown.

Criteria

- Equipment may include; weather station, sensors, flow meter, data loggers, cellular service, as needed to monitor soil moisture, determine and forecast crop water use and remotely control irrigation system.
- Subscription service provided by others may be used as alternative.



CONSERVATION STEWARDSHIP PROGRAM

- Data to be monitored includes crop water use, status of heat and/or frost conditions to permit the producer to make informed irrigation decisions.
- The installation includes the purchase and installation of equipment, and a data logger to log continuous weather data including rainfall, temperature, solar radiation, humidity, wind speed and soil moisture/water level sensors data that can be downloaded to a personal computer and associated graphing software.
- Producer monitors the station during the growing season to determine timing and amounts of water to apply based on soil moisture/water level sensors, field checks and weather station data.
- Producer keeps records of collected data and resulting irrigation decisions. This enhancement only applies to year one of IWM. The appropriate labor-only IWM enhancements apply in subsequent contract years.
- Weather station is installed on the farm and within 1 mile of fields where practice is implemented. The weather station will record each of the following (at a minimum of four times per hour),
 - High and low temperature
 - Precipitation
 - Humidity
 - Wind speed and duration
 - Solar radiation
- Sensors, datalogger and required telemetry are installed on fields where practice is implemented as indicated in the Irrigation water management plan.
- Irrigation water management plan is followed and includes, as per NRCS Conservation Standard Practice Irrigation Water Management (Code 449):
 - An irrigation system layout map showing the main pipeline(s), irrigated area, soil moisture locations and depths (if used), and soils. If water level sensors are used, show locations and number of sensors used.
 - Methods used to measure or determine the flow rate or volume of the irrigation applications.



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- o Measurement records showing the amount of water used to irrigate as it comes onto the farm and goes to each field.
- o Documentation of the scientific method used for scheduling the timing and amount of irrigation applications.
- o Irrigation water management plan explains;
 - how irrigation system meets crop needs, while maximizing irrigation water efficiency.
 - Seasonal or annual planned water application volumes by crop.
 - Management allowable depletion (MAD) and depth of the managed crop root zone or water level for each crop and stage of growth.
 - Evaluation of irrigation system distribution uniformity and necessary changes to insure uniform irrigation.
 - Information on how to recognize irrigation induced erosion and how to mitigate it.
 - Indicate how data from the sensor locations and depths will be considered to make field-wide irrigation decisions.
 - Water application scheduling based on soil moisture or water level monitoring and or evapotranspiration monitoring from the weather station
- o Recordkeeping documents for the irrigator to use during operation and management



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, acquire an irrigation water management plan meeting NRCS Conservation Practice Standard Irrigation Water Management (Code 449) requirements.
- ☐ Prior to implementation, acquire NRCS approval of selected weather station, sensors, data logger, etc. or subscription service.
- ☐ During implementation, ensure installation meets manufacturer recommendations.
- ☐ During implementation, record irrigation data such as location, date, duration, and flow rate of all irrigation operations, rainfall, evapotranspiration, and soil moisture or water level data.
- ☐ After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - o Irrigation water management plan and records kept
 - o Changes made to address distribution uniformity deficiencies
 - o Documentation of weather station, sensors, data logger, etc. installation to NRCS

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) as it relates to implementing this enhancement
- ☐ As needed, provide additional assistance to the participant as requested.
- ☐ Prior to implementation, review and approve producer's selected weather station, sensors, data logger, etc. or Subscription service.
- ☐ As needed, provide additional technical assistance to the participant as requested.
- ☐ After implementation, verify installation of weather station, sensors, etc.
- ☐ After implementation, verify implementation of the irrigation water management plan, by reviewing records kept during enhancement implementation.



NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E449144Z

CONSERVATION STEWARDSHIP PROGRAM

Complete pumping plant evaluation for all pumps on a farm

Conservation Practice 449: Irrigation Water Management

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture;
Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Inefficient Energy Use

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Evaluation of all pumping plants on fields where activity is implemented to determine the potential to rehabilitate/replace/reconfigure pump performance to improve water delivery efficiency 10% or more.. Evaluate to determine if a Variable Frequency Drive motor controller(s) is recommended and the simple payback in terms of energy savings is less than 10 years.

Criteria

- Pump test evaluation will include all irrigation pumps on the on fields where activity is implemented. There could be multiple pumps that are used on single or multiple fields. Minimum data necessary to complete the pumping evaluation:
 - Flow rate, instantaneous and for the season
 - Pressure at different flow rates based on partial or complete irrigations
 - Power usage to compute efficiency of the drive unit.
 - Area and fields irrigated
 - Estimate of friction loss in pipelines based on pressure drop in lines during test



CONSERVATION STEWARDSHIP PROGRAM

- Irrigation water management plan is followed and includes, as per NRCS Conservation Standard Practice Irrigation Water Management (Code 449):
 - An irrigation system layout map showing the main pipeline(s), irrigated area, soil moisture locations and depths (if used), and soils. If water level sensors are used, show locations and number of sensors used.
 - Methods used to measure or determine the flow rate or volume of the irrigation applications.
 - Measurement records showing the amount of water used to irrigate as it comes onto the farm and goes to each field.
 - Documentation of the scientific method used for scheduling the timing and amount of irrigation applications.
 - Irrigation water management plan explains:
 - How irrigation system meets crop needs, while maximizing irrigation water efficiency.
 - Seasonal or annual planned water application volumes by crop.
 - Management allowable depletion (MAD) and depth of the managed crop root zone or water level for each crop and stage of growth.
 - Evaluation of irrigation system distribution uniformity and necessary changes to insure uniform irrigation.
 - Information on how to recognize irrigation induced erosion and how to mitigate it.
 - Indicate how data from the sensor locations and depths will be considered to make field-wide irrigation decisions.
 - Water application scheduling based on soil moisture or water level monitoring and or evapotranspiration monitoring from the weather station
 - Recordkeeping documents for the irrigator to use during operation and management



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide NRCS with a map showing the location of all fields and pumps connected to the irrigation system.
- ☐ Prior to implementation, arrange for pump test evaluations of all irrigation pumps on fields where activity is implemented.
- ☐ Prior to implementation, acquire an irrigation water management plan meeting NRCS Conservation Practice Standard Irrigation Water Management (Code 449) requirements.
- ☐ During implementation, follow the irrigation water management plan and keep records as required by the plan.
- ☐ During implementation, have a pump test evaluation performed on all irrigation pumps on the on fields where activity is implemented .
- ☐ After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
 - o Irrigation water management plan and records kept
 - o Pump test evaluation report
 - o Provide a list of any adjustments to improve system efficiency made as a result of the evaluation . Calculate the reduction of energy use based on before and after conditions. Energy savings can be reported as the average annual or seasonal energy reduction compared to previous operating conditions.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) as it relates to implementing this enhancement
- ☐ As needed, provide additional technical assistance to the participant as requested.



CONSERVATION STEWARDSHIP PROGRAM

- ☐ After implementation, verify implementation of the irrigation water management plan, by reviewing records kept during enhancement implementation.
- ☐ After implementation, verify pump test evaluation, by reviewing evaluation report.
- ☐ After implementation, verify energy savings based on system efficiency before and after implementation of the enhancement.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E666119Z

CONSERVATION STEWARDSHIP PROGRAM

Enhance development of the forest understory to capture nutrients and limit their movement into ground water

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Forest stand improvement to manage the structure and composition of overstory and understory vegetation so that additional moisture is captured and filtered through the vegetation and soil, thus minimizing nutrient loss through ground water. Managing the understory vegetation will increase available water to the plants, minimize run-off and erosion, and improve water quality. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. These practices encourage development of a forested ecosystem that efficiently utilizes available water and captures nutrients.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- The enhancement will be applied to sites which have an uncharacteristically dense understory of shrubs and small trees that limit development of ground cover.



CONSERVATION STEWARDSHIP PROGRAM

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/stocking guides.
- Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), or Herbaceous Weed Control (code 315).
- Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).



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- The acres planned must have an “acceptable growing stock” level of at least the B line on an appropriate stocking chart.
- This enhancement requires implementation of the following activities (a through d) in the area where the enhancement applies.
 - a. Excessive volatile live vegetation and woody debris –When volatile, live grasses and shrubs and/or woody debris are present, a reduction of these fuels may be accomplished by using heavy duty brush cutters or similar equipment.
 - b. Closed canopy – When trees form a continuous closed canopy, thin the stand to allow for heat escape and to improve the health of residual trees and understory vegetation. Open the canopy by cutting or killing selected trees to allow sunlight to reach the forest floor. Reduce slash from the cut trees by cutting off the limbs as needed. An alternative is to use single tree injections to reduce the density of poor quality trees and open up the canopy.
 - c. Ladder fuels – When ladder fuels form connections between the ground and the higher levels of the canopy, thus increasing the risk of fire spreading into tree crowns, break the continuity of fuel between the ground and the upper canopy. Complete removal is not required as long as the continuity is disrupted.
 - d. Undesirable Vegetation – Use control measures to reduce or eliminate undesirable vegetation and favor desirable vegetation for the site.
- Minimize damage to residual trees during the treatment process.
- If machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States’ Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard or appropriate Job Sheet and use this information to meet the criteria of this enhancement.
- ☐ Prior to implementation, develop an understanding of management practices that reduce a dense understory of small trees and brush, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- ☐ Prior to implementation, work with a professional forester to prepare or update a current Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for thinning the stand and maintaining fully stocked conditions as specified in enhancement criteria. The FMP will also include recommended practices for managing understory vegetation to capture nutrients.
- ☐ Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
 - ☐ Brush Management (Code 314)
 - ☐ Forest Trails and Landings (Code 655)
 - ☐ Herbaceous Weed Control (Code 315)
 - ☐ Integrated Pest Management (Code 595)
 - ☐ Woody Residue Treatment (Code 384)
 - ☐ Prescribed Burning (Code 338)
- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed or killed, and will develop a strategy for controlling undesirable understory vegetation.
- ☐ Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- ☐ During implementation, follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and specifications provided by NRCS, to ensure that:



CONSERVATION STEWARDSHIP PROGRAM

- ☐ Trees are removed, killed, or retained to achieve all planned purposes and landowner objectives.
- ☐ The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
- ☐ The operation avoids or minimizes damage to desirable vegetation.
- ☐ During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- ☐ During implementation, reduce stand stocking to correspond with the B-line of an appropriate stocking chart, retaining trees with larger, healthy crowns and undamaged trunks. If tree removal is not an option, reduce density by killing selected trees through girdling and/or chemically treatments.
- ☐ During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions. If prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a state approved prescribed burn plan. If using chemical methods, follow application and timing recommendations from an approved source.
- ☐ During implementation, limit the size of debris piles to minimize wildfire hazards.
- ☐ During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, take digital photos showing representative post-treatment conditions.
- ☐ After implementation, notify NRCS that the work has been completed and make treatment documentation records available for NRCS review and certification.

NRCS will:

- ☐ Prior to implementation, provide assistance with interpretation of a current or updated FMP for sites where this enhancement will be applied.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - ☐ Brush management (Code 314)
 - ☐ Forest Stand Improvement (Code 666)
 - ☐ Woody Residue Treatment (Code 384)
 - ☐ Forest Trails and Landings (Code 655)



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- ☐ Herbaceous Weed Control (Code 315)
- ☐ Integrated Pest Management (Code 595)
- ☐ Prescribed Burning (Code 338)
- ☐ Prior to implementation, provide and explain the state's Forestry BMP guidelines.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ After implementation, review treatment documentation records and photographs to verify the enhancement was completed according to criteria in this enhancement, and in NRCS Forest Stand Improvement (Code 666).

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E666132Z2

CONSERVATION STEWARDSHIP PROGRAM

Reduce forest stand density to improve a degraded plant community

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Reducing forest stand density creates open forest conditions with a low basal area which promotes the health and vigor of the residual trees. The open stand structure allows a significant amount of sunlight to reach the forest floor and stimulates the growth of understory vegetation. Understory vegetation management, along with the wide spacing between trees or clumps of trees, provides visual appeal, lowers the risk of wildfire, and provides habitat for many at-risk and listed wildlife species. The enhancement creates conditions that facilitate a follow-up treatment with prescribed burning. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Thin the stand to a target basal area of 50 to 60 square feet/acre. This creates an open stand and stimulates the growth of herbaceous vegetation on the forest floor. Preferentially remove unhealthy individual trees, undesirable species, and trees with visible defects



CONSERVATION STEWARDSHIP PROGRAM

including forked or broken tops, thin crowns or damaged trunks. Retain desired species and individual trees with large healthy crowns and undamaged trunks.

- The stand may have been previously thinned or may be in need of thinning. Merchantable trees may be sold. Reduce stand density sufficiently to get light to the forest floor. The overstory thinning must be completed prior to the understory treatment.
- Trees that cannot be sold may be cut or killed to reduce the canopy and allow sunlight to reach the forest floor. Use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) as needed to treat felled wood.
- Minimize damage to residual trees during the thinning process.
- Time tree felling to avoid buildup of insect or disease populations.
- Understory vegetation in fire-adapted forest types will receive the greatest benefit from treatment with prescribed burning. Use NRCS Conservation Practice Standard Prescribed Burning (Code 338), and follow all applicable federal, state and local laws. If prescribed burning is not feasible or not appropriate for the site, understory vegetation may be treated with mechanical methods like mulching, mowing, chainsaws, or small dozers.
- Control measures should be used on undesirable competing vegetation, to favor the development of desirable vegetative communities on the site. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush management (Code 314), or Herbaceous Weed Control (Code 315).
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS CPS Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases



and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

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- Where machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- Do not conduct activities during the nesting season for ground nesting birds.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



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Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, read and understand the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard or job sheet. The information contained in these documents will assist you in meeting the criteria of this enhancement.
- ☐ Prior to implementation, have a current or updated Forest Management Plan that includes activities required to implement this enhancement.
- ☐ Prior to implementation, develop a strategy of tree removal and understory control prior to work being initiated.
- ☐ Prior to implementation, take some pre-treatment photos of the site.
- ☐ During implementation, reduce stand stocking to a basal area of 50 to 60 square feet/acre, retaining trees with large, healthy crowns and undamaged trunks.
- ☐ During implementation, control undesirable competing vegetation using appropriate methods for the species of trees and site conditions. (if using prescribed burning have a prescribed burn plan in place, if using chemical methods have recommendations from an approved source, or mechanical follow state BMP's).
- ☐ During implementation, control debris piles to minimize wildfire hazards.
- ☐ After implementation, the participant will provide the date completed, methods used, a map delineating treated acres and some representative post-treatment photos.

NRCS will:

- ☐ Prior to Implementation, provide assistance with interpretation or a current or updated Forest Management Plan for this property.
- ☐ Prior to Implementation, provide technical assistance on updating the Forest Management Plan and address the area targeted with this enhancement.
- ☐ Prior to Implementation, (as needed) discuss the need for a prescribed burn plan, how to obtain appropriate herbicide recommendations and/or following the state's BMP guidelines.
- ☐ Prior to Implementation, if needed, develop appropriate state approved Job Sheet(s).
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards (CPSs) as they relate to implementing this enhancement.
 - ☐ Brush Management (Code 314)



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- ☐ Forest Stand Improvement (Code 666)
- ☐ Forest Trails and Landings (Code 655)
- ☐ Herbaceous Weed Control (Code 315)
- ☐ Integrated Pest Management (Code 595)
- ☐ Woody Residue Treatment (Code 384)
- ☐ Prescribed Burning (Code 338)
- ☐ During Implementation, provide technical assistance if requested by the participant.
- ☐ After Implementation, verify the enhancement was implemented according to the NRCS Conservation Practice Standard Forest Stand Improvement Standard (Code 666) specifications and meets enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E666134Z

CONSERVATION STEWARDSHIP PROGRAM

Enhance development of the forest understory to create conditions resistant to pests

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Forest stand improvement that manages the structure and composition of overstory and understory vegetation to reduce vulnerability to damage by insects and diseases of forest trees. Managing the understory vegetation will also reduce the risk of wildfire, and promote development of herbaceous plants that benefit wildlife. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. These practices encourage the development of a less dense forested ecosystem. The canopy gaps and open understory allow for air circulation that reduces the incidence of disease, and the improved health of the residual trees increases their ability to withstand insect attacks. Forest stand improvement (FSI) activities are used to remove trees of undesirable species, form, quality, condition, or growth rate. The quantity and quality of forest for wildlife and/or timber production will be increased by manipulating stand density and structure. These treatments can also reduce wildfire hazards, improve forest health, restore natural plant communities, and achieve or maintain a desired native understory plant community for soil health, wildlife, grazing, and/or browsing.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.



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- The enhancement will be applied to sites which have an uncharacteristically dense understory of shrubs and small trees that limit development of ground cover.
- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/stocking guides.
- Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), and Herbaceous Weed Control (Code 315).
- Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management



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objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

- The acres planned must have an “acceptable growing stock” level of at least the B line on an appropriate stocking chart.
- This enhancement requires implementation of the following activities (a through d) in the area where the enhancement applies.
 - a. Excessive volatile live vegetation and woody debris –When volatile, live grasses and shrubs and/or woody debris are present, a reduction of these fuels may be accomplished by using heavy duty brush cutters or similar equipment.
 - b. Closed canopy – When trees form a continuous closed canopy, thin the stand to allow for heat escape and to improve the health of residual trees and understory vegetation. Open the canopy by cutting or killing selected trees to allow sunlight to reach the forest floor. Reduce slash from the cut trees by cutting off the limbs as needed. An alternative is to use single tree injections to reduce the density of poor quality trees and open up the canopy.
 - c. Ladder fuels – When ladder fuels form connections between the ground and the higher levels of the canopy, thus increasing the risk of fire spreading into tree crowns, break the continuity of fuel between the ground and the upper canopy. Complete removal is not required as long as the continuity is disrupted.
 - d. Undesirable Vegetation – Use control measures to reduce or eliminate undesirable vegetation and favor desirable vegetation for the site.
- Minimize damage to residual trees during the treatment process.
- If machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States’ Forestry Best Management Practices for Water Quality.



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Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) which contains information needed to meet criteria for this enhancement.
- ☐ Prior to implementation, develop an understanding of management practices that reduce a dense understory of small trees and brush, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- ☐ Prior to implementation, work with a professional forester to prepare or update a current Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for thinning the stand and maintaining fully stocked conditions as specified in enhancement criteria. The FMP will also include recommended practices for managing understory vegetation to minimize risks of insect and disease outbreaks.
- ☐ Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
 - ☐ Brush Management (Code 314)
 - ☐ Forest Trails and Landings (Code 655)
 - ☐ Herbaceous Weed Control (Code 315)
 - ☐ Integrated Pest Management (Code 595)
 - ☐ Woody Residue Treatment (Code 384)
 - ☐ Prescribed Burning (Code 338)
- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed or killed, and will develop a strategy for controlling undesirable understory vegetation.
- ☐ Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- ☐ During implementation, follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and specifications provided by NRCS, to ensure that:



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- o Trees are removed, killed, or retained to achieve all planned purposes and landowner objectives.
- o The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
- o The operation avoids or minimizes damage to desirable vegetation.
- ☐ During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- ☐ During implementation, reduce stand stocking to correspond with the B-line of an appropriate stocking chart, retaining trees with larger, healthy crowns and undamaged trunks. If tree removal is not an option, reduce density by killing selected trees through girdling and/or chemically treatments.
- ☐ During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions. If prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a state approved prescribed burn plan. If using chemical methods, follow application and timing recommendations from an approved source.
- ☐ During implementation, limit the size of debris piles to minimize wildfire hazards.
- ☐ During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, take digital photos showing representative post-treatment conditions.
- ☐ After implementation, notify NRCS that the work has been completed and make treatment documentation records available for NRCS review and certification.

NRCS will:

- ☐ Prior to implementation, provide assistance with interpretation of a current or updated FMP for sites where this enhancement will be applied.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - o Brush Management (Code 314)
 - o Herbaceous Weed Control (Code 315)
 - o Forest Stand Improvement (Code 666)
 - o Woody Residue Treatment (Code 384)



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- ☐ Forest Trails and Landings (Code 655)
- ☐ Integrated Pest Management (Code 595)
- ☐ Prescribed Burning (Code 338)
- ☐ Prior to implementation, provide and explain the state's Forestry BMP guidelines.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ After implementation, review treatment documentation records and certify that the enhancement was completed according to specifications in this enhancement, and in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666).

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E666135Z1

CONSERVATION STEWARDSHIP PROGRAM

Reduce height of the forest understory to limit wildfire risk

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Forest stand improvement that manages forest structure to reduce the risk of wildfire, and creates conditions that facilitate prescribed burning. The fire risk reduction is accomplished by reducing the height of the woody understory and midstory, creating space between the ground cover and the tree canopy. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation, and reduce the risk of wildfire. In appropriate stands, the treatment creates conditions that favor prescribed burning. Forest stand improvement (FSI) activities are used to remove trees of undesirable species, form, quality, condition, or growth rate. The quantity and quality of forest for wildlife and/or timber production will be increased by manipulating stand density and structure. These treatments can also reduce wildfire hazards, improve forest health, restore natural plant communities, and achieve or maintain a desired native understory plant community for soil health, wildlife, grazing, and/or browsing.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- The enhancement will be applied to sites which have an uncharacteristically dense understory of shrubs and small trees that limit development of ground cover.



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- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/stocking guides.
- Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), or Herbaceous Weed Control (315).
- Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).
- The acres planned must have an “acceptable growing stock” level of at least the B line on an appropriate stocking chart.



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- This enhancement requires implementation of the following activities (a through d) in the area where the enhancement applies.
 - a. Excessive volatile live vegetation and woody debris – When volatile, live grasses and shrubs and/or woody debris are present, a reduction of these fuels may be accomplished by using heavy duty brush cutters or similar equipment.
 - b. Closed canopy – When trees form a continuous closed canopy, thin the stand to allow for heat escape and to improve the health of residual trees and understory vegetation. Open the canopy by cutting or killing selected trees to allow sunlight to reach the forest floor. Reduce slash from the cut trees by cutting off the limbs as needed. An alternative is to use single tree injections to reduce the density of poor-quality trees and open up the canopy.
 - c. Ladder fuels – When ladder fuels form connections between the ground and the higher levels of the canopy, thus increasing the risk of fire spreading into tree crowns, break the continuity of fuel between the ground and the upper canopy. Complete removal is not required as long as the continuity is disrupted.
 - d. Undesirable Vegetation – Use control measures to reduce or eliminate undesirable vegetation and favor desirable vegetation for the site.
- Minimize damage to residual trees during the treatment process.
- If machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, work with a professional forester to develop or update a forestry management plan for the property.
- ☐ Prior to implementation, work with a professional forester to include **current** species, cover type, and size class distribution for stands to be treated in the plan.
- ☐ Prior to implementation, work with a professional forester to include **current** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated in the plan.
- ☐ Prior to implementation, work with a professional forester to include **desired** species, cover type, and size class distribution for stands to be treated in the plan.
- ☐ Prior to implementation, work with a professional forester to include **desired** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated in the plan.
- ☐ Prior to implementation, work with a professional forester to include in the updated or developed plan to identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.
- ☐ Prior to implementation, work with a professional forester using available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.
- ☐ Prior to implementation, work with professional forester and NRCS to delineate on a map the treatment areas and dates.
- ☐ Prior to implementation, discuss with professional forester or NRCS if NRCS Conservation Practice Standard Forest Trails and Landings (Code 655) will be necessary for access or to reduce erosion from vehicles/equipment.
- ☐ Prior to implementation, discuss with professional forester and NRCS if NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris.
- ☐ Prior to implementation, discuss with professional forester and NRCS if NRCS Conservation Practice Standard Prescribed Burning (Code 338) to appropriately treat slash and debris.
- ☐ During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

- ☐ During implementation, keep evidence to support the treatment activities were completed using representative photos. Location of representative photos must be indicated on the map delineating treated areas.
- ☐ After implementation, notify NRCS that treatment has been completed and submit pictures and map to support this.

NRCS will:

- ☐ Prior to implementation, provide and discuss with participant, as needed, NRCS Conservation Practice Standards Forest Trails and Landings (Code 655), Woody Residue Treatment (Code 384), and Prescribed Burning (Code 338).
- ☐ Prior to Implementation, verify that participant plan has been developed or updated by a professional forester.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester to include **current** species, cover type, and size class distribution for stands to be treated.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester to include **current** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and includes **desired** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and includes **desired** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and identifies and retains preferred tree and understory species to achieve all planned purposes and landowner objectives to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.
- ☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and uses available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.



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- ☐ Prior to implementation, assist the landowner, as needed, to delineate on a map the treatment areas and dates of treatment.
- ☐ During Implementation, verify any planned changes in plan will meet the enhancement criteria.
- ☐ After Implementation, verify that the treatment has been completed and meets enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E666135Z2

CONSERVATION STEWARDSHIP PROGRAM

Reduce forest density and manage understory along roads to limit wildfire risk

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: FOREST

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition – Wildfire Hazard

ENHANCEMENT LIFE SPAN: 10 YEARS

Enhancement Description:

Opening the tree canopy along roads ("daylighting"), and providing space between ground vegetation and tree crowns, minimizes the spread of wildfires that often start along roads. Additionally, opening the canopy will allow more sunlight to reach the forest floor and promote flowering plants, and will reduce maintenance needs by allowing moisture to evaporate from roads. The area along a forest road will have some trees removed through harvesting, cutting, mulching, or another option available at the site, with the objective of creating a partially open forest canopy bordering the road. The semi-open canopy provides a greater amount of sunlight reaching the forest floor, which with appropriate management will increase herbaceous ground cover. The open canopy and herbaceous understory minimizes woodland fuel and reduces the intensity of wildfires.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Remove about half (50 percent) of the trees in strips along on both sides of the road, if needed. Implement tree removal for a distance of 35 feet or more into the forest stand from the edge of the road.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic



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conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- Wetland compliance and highly erodible land regulations must be followed.
- Trees removed during the daylighting process having marketable quality may be sold. Retain desirable species with large healthy crowns, and trees and shrubs that provide a diversity of wildlife food sources. Remove trees that are:
 - At high risk of mortality or failure (unless retained as a wildlife tree at a safe distance from the road)
 - Of low crown vigor
 - Of poor stem form and quality
 - Less-desirable species.
- Trees that cannot be sold may be removed by cutting, mulching, firewood distribution, or other means to reduce the canopy and allow sunlight to reach the forest floor. Trees further away from the road may be killed and left standing as snags, if they will not fall onto the road.
- Minimize damage to residual trees during the daylighting process.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), or Herbaceous Weed Control (Code 315) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management



objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

CONSERVATION STEWARDSHIP PROGRAM

- The understory vegetation can be maintained by prescribed burning where appropriate. Use NRCS Conservation Practice Standard Prescribed Burning (Code 338). If prescribed burning is not an option, alternative methods may be used to manage the understory vegetation, such as mowing or fall disking.
- The daylighted area may be treated with herbicides to control noxious and invasive plants and undesirable woody vegetation to promote herbaceous plants. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), or Herbaceous Weed Control (Code 315).
- No daylighting activities should take place during the nesting season for ground nesting birds.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and use this information to meet the criteria of this enhancement.
- ☐ Prior to implementation, develop an understanding of management practices that reduce tree density, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- ☐ Prior to implementation, recognize that other NRCS conservation practices may be needed to apply this enhancement. These may include:
 - ☐ Brush management (Code 314)
 - ☐ Herbaceous Weed Control (Code 315)
 - ☐ Integrated Pest Management (Code 595)
 - ☐ Woody Residue Treatment (Code 384)
 - ☐ Prescribed Burning (Code 338)
- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed, and will develop a strategy for controlling undesirable understory vegetation.
- ☐ Prior to implementation, if prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a prescribed burn plan. If chemical methods will be used, obtain recommendations from an approved source.
- ☐ Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- ☐ During implementation, follow criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and specifications provided by NRCS, to ensure that:
 - ☐ Overstory trees are removed or retained to achieve all planned purposes and landowner objectives.
 - ☐ The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
 - ☐ The operation avoids or minimizes damage to desirable vegetation.



CONSERVATION STEWARDSHIP PROGRAM

- ☐ During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- ☐ During implementation, remove approximately 50 percent of the trees along both sides of interior roads extending perpendicular at least 35 feet out to 100 feet from the road. If the road is along a boundary, only treat one side along the road.
- ☐ During implementation, focus on retaining healthy trees and when available retain trees that provide wildlife benefits such as oaks, hickories, etc.
- ☐ During implementation, remove trees that are at risk of mortality, trees with low crown vigor, trees with poor form and quality, and less-desirable species.
- ☐ During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions.
- ☐ During implementation, limit the size of debris piles to minimize wildfire hazards.
- ☐ During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, take digital photographs showing representative post-treatment conditions.
- ☐ After implementation, notify NRCS that the work has been completed and make treatment documentation available for NRCS review and certification.

NRCS will:

- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards (CPSs) as they relate to implementing this enhancement.
 - ☐ Brush management (Code 314)
 - ☐ Herbaceous Weed Control (Code 315)
 - ☐ Forest Stand Improvement (Code 666)
 - ☐ Woody Residue Treatment (Code 384)
 - ☐ Forest Trails and Landings (Code 655)
 - ☐ Integrated Pest Management (Code 595)
 - ☐ Prescribed Burning (Code 338)
- ☐ As needed, prior to implementation, NRCS will provide technical assistance in:



CONSERVATION STEWARDSHIP PROGRAM

- ☐ Interpreting enhancement criteria relative to tree species to retain and remove or kill, and strategy for controlling undesirable understory vegetation.
- ☐ Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ Prior to implementation, ensure that the participant has an appropriate prescribed burn plan, herbicide recommendations from an approved source and an understanding of how these practices will be applied on the property.
- ☐ Prior to implementation, provide and explain the state's Forestry BMP guidelines.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ After implementation, review documentation and photographs to verify the enhancement was completed according to enhancement criteria and NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) specifications.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E666136Z1

CONSERVATION STEWARDSHIP PROGRAM

Reduce forest density and manage understory along roads to improve wildlife food sources

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 YEARS

Enhancement Description:

Opening the tree canopy along roads ("daylighting") allows more sunlight to reach the forest floor and promotes the growth of herbaceous plants. The resulting condition is more visually appealing for users of the roadway, and improves wildlife habitat and food sources for many wildlife species. The area along a forest road will have some trees removed through harvesting, cutting, mulching, or another option available at the site, with the objective of creating a partially open forest canopy bordering the road. The semi-open canopy provides a greater amount of sunlight reaching the forest floor, which with appropriate management will increase herbaceous ground cover. The open canopy and herbaceous understory provides diverse habitat and food for wildlife.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Remove about half (50 percent) of the trees in strips along on both sides of the road, if needed. Implement tree removal for a distance of 35 feet or more into the forest stand from the edge of the road.



CONSERVATION STEWARDSHIP PROGRAM

- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- Wetland compliance and highly erodible land regulations must be followed.
- Trees removed during the daylighting process having marketable quality may be sold. Retain desirable species with large healthy crowns, and trees and shrubs that provide a diversity of wildlife food sources. Remove trees that are:
 - At high risk of mortality or failure (unless retained as a wildlife tree at a safe distance from the road)
 - Of low crown vigor
 - Of poor stem form and quality
 - Less-desirable species.
- Trees that cannot be sold may be removed by cutting, mulching, firewood distribution, or other means to reduce the canopy and allow sunlight to reach the forest floor. Trees further away from the road may be killed and left standing as snags, if they will not fall onto the road.
- Minimize damage to residual trees during the daylighting process.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) Brush Management (Code 314), or Herbaceous Weed Control (Code 315) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard.



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Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

- The understory vegetation can be maintained by prescribed burning where appropriate. Use NRCS CPS Prescribed Burning (Code 338). If prescribed burning is not an option, alternative methods may be used to manage the understory vegetation, such as mowing or fall disking.
- The daylighted area may be treated with herbicides to control noxious and invasive plants and undesirable woody vegetation to promote herbaceous plants. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), or Herbaceous Weed Control (Code 315)
- No daylighting activities should take place during the nesting season for ground nesting birds.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) which contains information needed to meet criteria for this enhancement.
- ☐ Prior to implementation, develop an understanding of management practices that reduce tree density, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- ☐ Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
 - o Brush Management (Code 314)
 - o Herbaceous Weed Control (Code 315)
 - o Integrated Pest Management (Code 595)
 - o Woody Residue Treatment (Code 384)
 - o Prescribed Burning (Code 338)
- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed, and will develop a strategy for controlling undesirable understory vegetation.
- ☐ Prior to implementation, if prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a prescribed burn plan. If chemical methods will be used, obtain recommendations from an approved source.
- ☐ Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- ☐ During implementation, follow criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and specifications provided by NRCS, to ensure that:
 - o Overstory trees are removed or retained to achieve all planned purposes and landowner objectives.
 - o The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
 - o The operation avoids or minimizes damage to desirable vegetation.



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- ☐ During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- ☐ During implementation, remove approximately 50 percent of the trees along both sides of interior roads extending perpendicular at least 35 feet out to 100 feet from the road. If the road is along a boundary, only treat one side along the road.
- ☐ During implementation, focus on retaining healthy trees and when available retain trees that provide wildlife benefits such as oaks, hickories, etc.
- ☐ During implementation, remove trees that are at risk of mortality, trees with low crown vigor, trees with poor form and quality, and less-desirable species.
- ☐ During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions.
- ☐ During implementation, limit the size of debris piles to minimize wildfire hazards.
- ☐ During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, take digital photos showing representative post-treatment conditions.
- ☐ After implementation, notify NRCS that the work has been completed and make treatment documentation available for NRCS review and certification.

NRCS will:

- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - ☐ Brush Management (Code 314)
 - ☐ Herbaceous Weed Control (Code 315)
 - ☐ Forest Stand Improvement (Code 666)
 - ☐ Woody Residue Treatment (Code 384)
 - ☐ Forest Trails and Landings (Code 655)
 - ☐ Integrated Pest Management (Code 595)
 - ☐ Prescribed Burning (Code 338)
- ☐ As needed, prior to implementation, NRCS will provide technical assistance in:



CONSERVATION STEWARDSHIP PROGRAM

- ☐ Interpreting enhancement criteria relative to tree species to retain and remove or kill, and strategy for controlling undesirable understory vegetation.
- ☐ Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ Prior to implementation, ensure that the participant has an appropriate prescribed burn plan, herbicide recommendations from an approved source and an understanding of how these practices will be applied on the property.
- ☐ Prior to implementation, provide and explain the state's Forestry BMP guidelines.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ After implementation, review documentation and photographs to verify the enhancement was completed according to specifications in this enhancement and NRCS Conservation Practice Standard Forest Stand Improvement (Code 666).

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY
E666136Z2

CONSERVATION
STEWARDSHIP
PROGRAM

Reduce forest stand density to improve
wildlife food sources

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Fish and Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Reducing forest stand density creates open forest conditions with a low basal area which promotes the health and vigor of the residual trees while promoting wildlife food sources in the understory. The open stand structure allows a significant amount of sunlight to reach the forest floor and stimulates the growth of understory vegetation. Understory vegetation management, along with the wide spacing between trees or clumps of trees, provides visual appeal, lowers the risk of wildfire, and provides food, cover, and shelter for many at-risk and listed wildlife species. The enhancement creates conditions that facilitate a follow-up treatment with prescribed burning. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Thin the stand to a target basal area of 50 to 60 square feet/acre. This creates an open stand and stimulates the growth of herbaceous vegetation on the forest floor. Preferentially remove unhealthy individual trees, undesirable species, and trees with visible defects



CONSERVATION STEWARDSHIP PROGRAM

including forked or broken tops, thin crowns or damaged trunks. Retain desired species and individual trees with large healthy crowns and undamaged trunks.

- The stand may have been previously thinned or may be in need of thinning. Merchantable trees may be sold. Reduce stand density sufficiently to get light to the forest floor. The overstory thinning must be completed prior to the understory treatment.
- Trees that cannot be sold may be cut or killed to reduce the canopy and allow sunlight to reach the forest floor. Use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) as needed to treat felled wood.
- Minimize damage to residual trees during the thinning process.
- Time tree felling to avoid buildup of insect or disease populations.
- Understory vegetation in fire-adapted forest types will receive the greatest benefit from treatment with prescribed burning. Use NRCS Conservation Practice Standard Prescribed Burning (Code 338), and follow all applicable federal, state and local laws. If prescribed burning is not feasible or not appropriate for the site, understory vegetation may be treated with mechanical methods like mulching, mowing, chainsaws, or small dozers.
- Control measures should be used on undesirable competing vegetation, to favor the development of desirable vegetative communities on the site. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) Brush Management (Code 314), or Herbaceous Weed Control (Code 315).
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire



hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).

CONSERVATION STEWARDSHIP PROGRAM

- Where machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- Do not conduct activities during the nesting season for ground nesting birds.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, use the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard or appropriate state approved NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) Job Sheet to meet the criteria of this enhancement.
- ☐ Prior to implementation, provide to NRCS a current or updated Forest Management Plan that includes activities addressing this enhancement.
- ☐ Prior to implementation, set guidelines to maintain the stand in a fully stocked condition along the B line on the site appropriate stocking chart. Reduce the overstory tree density to create open stand of trees allowing sunlight to the forest floor.
- ☐ Prior to implementation, develop a strategy to manage the understory vegetation to favor wildlife food producing plants using prescribed burning, chemical methods or mechanical methods. (If prescribed burning is used - have a prescribed burn plan in place, for chemical treatments – have recommendations from an approved source, and for mechanical methods follow state BMP guidelines).
- ☐ During implementation, thin the stand down to the B line on the stocking chart to open the canopy while maintaining a fully stocked stand of trees. If thinning is not an option, reduce the canopy by chemically treating selected trees to open the canopy while maintaining a fully stocked stand of trees.
- ☐ During implementation, avoid making large areas of woody debris.
- ☐ During implementation, strive to minimize volatile vegetation and reduce ladder fuels if present.
- ☐ During implementation, control undesirable vegetation using prescribed burning, chemical treatments or mechanical methods. Follow the appropriate guidelines (prescribed burn plan, chemical recommendations or state BMP guidelines).
- ☐ After implementation, the participant will provide the date completed, acres treated, methods used and a map delineating treated acres.

NRCS will:

- ☐ Prior to Implementation, provide assistance with the interpretation of the Forest Management Plan and how it details the acres targeted for management.



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- ☐ Prior to implementation, provide and explain the guidance in the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and how it relates to the use of this enhancement.
- ☐ Prior to implementation, provide assistance with the development of appropriate state approved NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) Job Sheets and discuss the details with the participant.
- ☐ Prior to implementation, discuss the need for managing the understory vegetation along with the overstory. The understory should be managed using prescribed burning, chemical or mechanical treatments. Be sure that there is a prescribed burn plan, chemical recommendations or mechanical treatments following state BMP guidelines in implementing this enhancement.
- ☐ During Implementation, provide technical assistance if requested by the participant.
- ☐ After Implementation, verify the enhancement was completed according to the enhancement criteria and NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) practice specifications.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E666137Z1

CONSERVATION STEWARDSHIP PROGRAM

Snags, den trees, and coarse woody debris for wildlife habitat

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Improve wildlife habitat through creation and retention of snags, den trees, forest stand structural diversity, and coarse woody debris on the forest floor, to provide cover/shelter for native wildlife species.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Identify desired wildlife species that use snags, den trees, coarse woody debris, and/or brush piles for shelter, cover, nest sites, and/or rearing sites.
- Manage for specific tree species, or a selected mix of species, size-classes, and stocking rates at the appropriate scale to meet desired wildlife habitat requirements.
- Create, recruit, and maintain sufficient snags, nest, cavity/den trees, and coarse woody debris to meet requirements of desired species. Arrange downed woody material into brush piles as appropriate for desired wildlife species. Refer to criteria in NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645) for manipulation of vegetation.



CONSERVATION STEWARDSHIP PROGRAM

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- When determining which trees will be killed for snag creation, and/or used to create cavities/dens, consider effects on the remaining stand.
 - Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
 - Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained.
 - Refer to criteria in NRCS CPS Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression.
 - Consider using downed woody material to create brush piles for additional wildlife habitat.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, participant will work with NRCS to identify the desired wildlife species that use snags, den trees, coarse woody debris, and/or brush piles for shelter, cover, nest sites, and/or rearing sites, and are likely to benefit from the enhancement.

Desired Wildlife Species

- ☐ Prior to Implementation, participant will work with professional forester or NRCS to delineate on a map the acres that the enhancement would be applied.
- ☐ Prior to implementation, participant will work with professional forester or NRCS to estimate how many snags, den trees, coarse woody debris, and/or brush piles are present per acre on the acres identified.
- ☐ Prior to implementation, work with NRCS to determine how many snags per acre per size class would be needed in addition to those present that will benefit the wildlife species.

Snags and Woody Residue size classes	Estimated Snags/Den Trees per Acre	Desired Snags/Den Trees per Acre	# of Snags/Den Trees per Acre to be Created
Snags 6-10 inch diameter at breast height.		2 or more	
Snags 10-20 inch diameter at breast height		2 or more	
Snags >20 inch diameter at breast height		2 or more	
Large Woody Debris >20 inch diameter		1 or more	
Brush piles		1	

- ☐ During implementation, notify NRCS if any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, keep a written log and take digital photos of snag/den trees created and approximate locations on a map.
- ☐ After implementation, notify NRCS that the work has been completed; submit digital photos.
- ☐ After implementation, retain digital photos for NRCS to verify practice has been completed.

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NRCS will:

- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - ☐ Forest Stand Improvement (Code 666)
 - ☐ Upland Wildlife Habitat Management (Code 645)
- ☐ Prior to implementation, assist participant in determining which wildlife species will benefit from snags, den trees, coarse woody debris, and/or brush piles for shelter, cover, nest sites, and/or rearing sites.
- ☐ Prior to implementation, assist the landowners to delineate on a map the acres that the enhancement would be applied.
 - ☐ Prior to implementation, assist the participant to determine the number of snags (by size class), den trees, coarse woody debris, and/or brush piles exist on the acres delineated by the enhancement. Determine the desired number, with the difference being the # of snags, den trees, coarse woody debris, and/or brush piles need to be created to meet criteria of the enhancement.
- ☐ During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
 - ☐ After implementation, verify that the number of snags, den trees, coarse woody debris, and/or brush piles have been created.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E666137Z6

CONSERVATION STEWARDSHIP PROGRAM

Create patch openings to enhance wildlife cover and shelter

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land

RESOURCE CONCERN ADDRESSED: Fish and Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 10 Years

Enhancement Description:

Forest stand improvement that creates patch openings. Size, shape, and arrangement of patches will be based on natural features, and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically and by forest type, and by tree species desired from natural regeneration. The treatment will create diversity in stand composition and structure, and enhance the availability of wildlife cover and shelter. Forest stand improvement can be used to create small openings where all of the trees are removed. Creating openings may serve to restore natural plant communities, and achieve or maintain a desired understory plant community to provide wildlife habitat. Habitat for certain wildlife species is improved by increasing by the amount of edge, cover and diversity of the tract.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- This enhancement may be applied only to forested acres that have an “acceptable growing stock” level. For tree species with stocking charts, this is at least the B line, the lowest level of a fully stocked stand.
- The size of patches to be treated can vary from 1 to 10 acres, be distributed throughout the forest and cannot total more than 30% of the acres meeting the “acceptable growing stock” level.



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- Forested acres targeted for patch development must contain species for regeneration from the NRCS state list of suitable trees. Species on this list have the ability to regenerate from seed, sprouts, or other natural regeneration sources.
- Preferentially locate patch openings in areas that lack crop trees or wildlife trees, and where there is an aggregation of trees that are:
 - At high risk of mortality or failure (unless retained as a wildlife tree)
 - Of low crown vigor
 - Of poor stem form and quality
 - Less-desirable species.
- Trees removed during patch development having marketable quality can be sold.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).
- Slash and cull trees must be managed if the material interferes with the production of wildlife food. The material may be managed as follows:
 - Windrowing or Wildlife piles
 - Chipping or Cutting for firewood
 - In appropriate stands, prescribed burning may be used.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Control measures may be used on undesirable competing vegetation, to favor the development of desirable vegetative communities on the site. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595).



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- For areas adjacent to patch openings, leave residual trees and shrubs that provide a diversity of wildlife food sources.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Use NRCS Conservation Practice Standard S Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- If management of the remaining forest area (between patch openings) provides a conservation benefit, management can be accomplished at the same time as patch opening creation. Use applicable criteria from NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) when managing the general forest area.



Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, work with NRCS or your forester to develop or update a forest management plan which will include management practices you will apply to address the documented resource concerns. (NRCS will provide technical assistance, as needed.)
- ☐ Prior to implementation, select areas for patch openings that contain species for regeneration from the NRCS state list of suitable trees that have the ability to regenerate from seed, sprouts, or other natural means and document these are present and vigorous enough to regenerate. (NRCS will provide technical assistance, as needed.)
- ☐ Prior to implementation, determine the size, shape, location, and distribution of openings throughout the forest, with the size of each opening being between 1-10 acres and the total acres in openings being less than 30% of eligible forest acres based on stocking. Locate openings in areas that lack crop trees or wildlife trees and where there is an aggregation of trees that are:
 - ☐ At high risk of mortality or failure
 - ☐ Of low crown vigor
 - ☐ Of poor stem form or quality
 - ☐ Less-desirable species
- ☐ During implementation, manage slash and cull trees by windrowing, creating wildlife piles, chipping, cutting for firewood, and/or prescribed burning if appropriate.
- ☐ During implementation, protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.
- ☐ After implementation, provide NRCS a map showing the location of patches and photos documenting that patch cuts were completed according to specifications.

NRCS will:

- ☐ Prior to implementation, verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet.
- ☐ Prior to implementation, provide technical assistance in:
 - ☐ Identifying size, shape, location, and distribution of openings, including percentage of the stand that will be in openings, to meet the criteria within the enhancement guide sheet.

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- o Evaluating stocking and acceptable growing stock for both pre- and post-treatment stand conditions.
- o Identifying desired species to be regenerated in the openings.

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- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standards Forest Stand Improvement (Code 666), CPS Woody Residue Treatment (Code 384), CPS Prescribed Burning (Code 338), CPS Integrated Pest Management (Code 595), and CPS Forest Trails and Landings (Code 655) as they relate to implementing this enhancement.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the planned patch openings were established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION ENHANCEMENT ACTIVITY

E666137Z7

CONSERVATION STEWARDSHIP PROGRAM

Enhance development of the forest understory to provide wildlife cover and shelter

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Fish and Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Forest stand improvement that manages the structure and composition of overstory and understory vegetation to improve the quantity and quality of wildlife cover and shelter. Reducing the number of trees per acre provides canopy openings that allow sunlight to reach the forest floor and promote the growth of herbaceous plants, improving wildlife shelter and cover in the forest understory. The treatment also creates conditions that facilitate the use of prescribed burning as a follow-up practice to maintain wildlife shelter and cover in fire-adapted forests. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. Where wildlife species have inadequate habitat or food, managing the understory in a forest can provide excellent food, shelter and cover.

Criteria

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- The enhancement will be applied to sites which have an uncharacteristically dense understory of shrubs and small trees that limit development of ground cover.
- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.



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- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/stocking guides.
- Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), Brush Management (Code 314), or Herbaceous Weed Control (Code 315).
- Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).
- The acres planned must have an “acceptable growing stock” level of at least the B line on an appropriate stocking chart.



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- This enhancement requires implementation of the following activities (a through d) in the area where the enhancement applies.
 - a. Excessive volatile live vegetation and woody debris – When volatile, live grasses and shrubs and/or woody debris are present, a reduction of these fuels may be accomplished by using heavy duty brush cutters or similar equipment.
 - b. Closed canopy – When trees form a continuous closed canopy, thin the stand to allow for heat escape and to improve the health of residual trees and understory vegetation. Open the canopy by cutting or killing selected trees to allow sunlight to reach the forest floor. Reduce slash from the cut trees by cutting off the limbs as needed. An alternative is to use single tree injections to reduce the density of poor quality trees and open up the canopy.
 - c. Ladder fuels – When ladder fuels form connections between the ground and the higher levels of the canopy, thus increasing the risk of fire spreading into tree crowns, break the continuity of fuel between the ground and the upper canopy. Complete removal is not required as long as the continuity is disrupted.
 - d. Undesirable Vegetation – Use control measures to reduce or eliminate undesirable vegetation and favor desirable vegetation for the site.
- Minimize damage to residual trees during the treatment process.
- If machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) which contains information needed to meet criteria for this enhancement.
- ☐ Prior to implementation, develop an understanding of management practices that reduce a dense understory of small trees and brush, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- ☐ Prior to implementation, work with a professional forester to prepare or update a current Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for thinning the stand and maintaining fully stocked conditions as specified in enhancement criteria. The FMP will also include recommended practices for managing understory vegetation to favor wildlife cover and shelter.
- ☐ Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
 - ☐ Brush Management (Code 314)
 - ☐ Herbaceous Weed Control (Code 315)
 - ☐ Forest Trails and Landings (Code 655)
 - ☐ Integrated Pest Management (Code 595)
 - ☐ Woody Residue Treatment (Code 384)
 - ☐ Prescribed Burning (Code 338)
- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed or killed, and will develop a strategy for controlling undesirable understory vegetation.
- ☐ Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- ☐ During implementation, follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and specifications provided by NRCS, to ensure that:



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- ☐ Trees are removed, killed, or retained to achieve all planned purposes and landowner objectives.
- ☐ The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
- ☐ The operation avoids or minimizes damage to desirable vegetation.
- ☐ During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- ☐ During implementation, reduce stand stocking to correspond with the B-line of an appropriate stocking chart, retaining trees with larger, healthy crowns and undamaged trunks. If tree removal is not an option, reduce density by killing selected trees through girdling and/or chemically treatments.
- ☐ During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions. If prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a state approved prescribed burn plan. If using chemical methods, follow application and timing recommendations from an approved source.
- ☐ During implementation, limit the size of debris piles to minimize wildfire hazards.
- ☐ During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, take digital photos showing representative post-treatment conditions.
- ☐ After implementation, notify NRCS that the work has been completed and make treatment documentation records available for NRCS review and certification.

NRCS will:

- ☐ Prior to implementation, provide assistance with interpretation of a current or updated FMP for sites where this enhancement will be applied.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - ☐ Brush Management (Code 314)
 - ☐ Herbaceous Weed Control (Code 315)
 - ☐ Forest Stand Improvement (Code 666)



CONSERVATION STEWARDSHIP PROGRAM

- ☐ Woody Residue Treatment (Code 384)
- ☐ Forest Trails and Landings (Code 655)
- ☐ Integrated Pest Management (Code 595)
- ☐ Prescribed Burning (Code 338)
- ☐ Prior to implementation, provide and explain the state's Forestry BMP guidelines.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ After implementation, review treatment documentation records and certify that the enhancement was completed according to specifications in this enhancement, and in NRCS Forest Stand Improvement (Code 666).

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E314133Z

Brush management for improved structure and composition

Conservation Practice 314: Brush Management

APPLICABLE LAND USE: Range, Pasture, Forest

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Brush management is employed to create a desired plant community, consistent with the related ecological site steady state, which will maintain or enhance the wildlife habitat desired for the identified wildlife species. It will be designed to provide plant structure, density and diversity needed to meet those habitat objectives. This enhancement does not apply to removal of woody vegetation by prescribed fire or removal of woody vegetation to facilitate a land use change.

Criteria

- Identify species of concern and brush species favored or disfavored in the objectives of the brush management enhancement activity.
- This enhancement will be applied in a manner to achieve the desired control of the target woody species while protecting the desired species through mechanical, chemical, or biological methods alone or in combination. NRCS will not develop biological or chemical treatment recommendations except for biological control using grazing animals. NRCS may provide clients with acceptable biological and/or chemical control references.



CONSERVATION STEWARDSHIP PROGRAM

- Brush management activities will be planned and applied in a manner to meet the habitat requirements for wildlife species of concern as determined by the state's NRCS Wildlife Habitation Evaluation Guide (WHEG) and will be managed to achieve or maintain a value of 0.75 or greater.
- Brush management activities will be designed to achieve the desired plant community based on desired plant species composition, structure, density, and canopy (or foliar) cover or height.
- Treatment activities will be conducted during periods of the year that accommodate reproduction and other life-cycle requirements of the targeted wildlife and pollinator species.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, meet with NRCS to complete Wildlife Habitat Evaluation Guide (WHEG) evaluation at the site.
- o Prior to implementation, determine and write down clear objectives for brush management and implementation of this enhancement.
- o Prior to implementation, develop a map delineating the areas to be treated and enrolled in this enhancement.
- o During implementation, maintain records of applied treatments (pesticide used, rate applied, timing, etc.) and grazing. The records must support the label requirements for re-entry or grazing restrictions when applicable. *Records for each treatment area:*
 - 1. *A full description of the mechanical, chemical, or biological control techniques utilized including:*
 - *Method (s) of control used*
 - *Area (s) on farm where control methods were applied*
 - *If biological control used, the number and species of grazing animals utilized, and/or number and species of introduced insect colonies distributed and the planned time frame of the treatment.*
 - *If grazing by livestock chosen as a biological treatment then a grazing plan must be developed and followed using the Prescribed Grazing (528) conservation practice standard.*
 - *If chemical control chosen then a chemical application plan must be developed using the Windows Pesticide Screening Tool (WIN-PST). NRCS can provide assistance with the tool.*
 - *Provide a record of the pesticide rates, substances, etc.*
 - *Photograph (s) of areas before and after treatment (s) applied.*
 - 2. *A map showing where the activities were applied including treatment acreage.*
- o After implementation, reassess habitat condition with NRCS using the WHEG.
- o After implementation, provide records for review by NRCS to verify enhancement was implemented to meet criteria.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o Prior to implementation, confirm brush management and grazing management plan objectives clearly identify the wildlife of concern for the area *through completion of the Brush Management Job Sheet (JS-MO314)*.
- o Prior to implementation, meet with participant to complete WHEG evaluation at the site. *Use the Forest Community Model WHAG or the Prairie and Grassland Community Model WHAG, whichever is appropriate.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- o Prior to implementation, NRCS will make cover or density measurements at georeferenced transects on key areas.
- o After implementation, NRCS will return to georeferenced area to measure cover or density and report the results.
- o After implementation, review records to verify participant implemented enhancement to meet criteria.
- o After implementation, reassess habitat condition using the Wildlife Habitat Evaluation Guide. *Use the Forest Community Model WHAG or the Prairie and Grassland Community Model WHAG, whichever is appropriate.*

Post Implementation WHEG score = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E314134Z

Brush management that maintains or enhances wildlife or fish habitat

Conservation Practice 314: Brush Management

APPLICABLE LAND USE: Pasture, Range, and Forest

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Brush management is employed to create a desired plant community on the landscape, consistent with the related ecological site steady state, which will maintain or enhance the wildlife habitat desired for the identified wildlife species. It will be designed to provide plant structure, density and diversity needed to meet those habitat objectives. This enhancement does not apply to removal of woody vegetation by prescribed fire or removal of woody vegetation to facilitate a land use change.

Criteria

- This enhancement will be applied in a manner to achieve the desired control of the target woody species while protecting the desired species through mechanical, chemical, or biological methods, alone or in combination. NRCS will not develop biological or chemical treatment recommendations except for biological control using grazing animals. NRCS may provide clients with acceptable biological and/or chemical control references.



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- Identify species of concern and landscape specific brush habitat functionality in the objectives of the brush management enhancement.
- Brush management will be planned and applied in a manner to meet the habitat requirements for wildlife species of concern as determined by the state's NRCS Wildlife Habitation Evaluation Guide (WHEG).
- Evaluate wildlife habitat with the state NRCS WHEG and manage for a value of 0.75 or greater.
- Brush management will be designed to achieve the desired plant community based on species composition, structure, density, and canopy (or foliar) cover or height.
- Conduct treatments during periods of the year that accommodate reproduction and other life-cycle requirements of target wildlife and pollinator species.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, meet with NRCS to complete the Wildlife Habitat Evaluation Guide (WHEG) evaluation at the site.
- o Prior to implementation, determine and write down clear objectives for brush management and implementation of this enhancement.
- o Prior to implementation, develop a map delineating the areas to be treated and enrolled in this enhancement.
- o During implementation, maintain records of applied treatments (pesticide used, rate applied, timing, etc.) and grazing. The records must support the label requirements for re-entry or grazing restrictions when applicable. *Records for each treatment area:*
 - 1. *A full description of the mechanical, chemical, or biological control techniques utilized including:*
 - *Method (s) of control used*
 - *Area (s) on farm where control methods were applied*
 - *If biological control used, the number and species of grazing animals utilized, and/or number and species of introduced insect colonies distributed and the planned time frame of the treatment.*
 - *If grazing by livestock chosen as a biological treatment then a grazing plan must be developed and followed using the Prescribed Grazing (528) conservation practice standard.*
 - *If chemical control chosen then a chemical application plan must be developed using the Windows Pesticide Screening Tool (WIN-PST). NRCS can provide assistance with the tool.*
 - *Provide a record of the pesticide rates, substances, etc.*
 - *Photograph (s) of areas before and after treatment (s) applied.*
 - 2. *A map showing where the activities were applied including treatment acreage.*
- o After implementation, reassess habitat condition with NRCS using the WHEG.
- o After implementation, provide records for review by NRCS to verify enhancement was implemented to meet criteria.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Prior to implementation, confirm brush management and grazing management plan objectives clearly identify the wildlife of concern for the area *through completion of the Brush Management Job Sheet (JS-MO314)*.
- Prior to implementation, meet with participant to complete WHEG evaluation at the site. *Use the Forest Community Model WHAG or the Prairie and Grassland Community Model WHAG, whichever is appropriate.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- Prior to implementation, NRCS will make cover or density measurements at georeferenced transects on key areas.
- After implementation, NRCS will return to georeferenced area to measure cover or density and report the results.
- After implementation, review records to verify participant implemented enhancement to meet criteria.
- After implementation, reassess habitat condition using the Wildlife Habitat Evaluation Guide. *Use the Forest Community Model WHAG or the Prairie and Grassland Community Model WHAG, whichever is appropriate.*

Post Implementation WHEG score = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E314135Z - Brush management that maintains or enhances wildlife or fish habitat

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E315132Z

Herbaceous weed treatment that helps create desired plant communities and habitats consistent with the ecological site

Conservation Practice 315: Herbaceous Weed Treatment

APPLICABLE LAND USE: Pasture, Forest

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Mechanical, chemical, or biological, herbaceous weed treatment will be employed to control targeted, herbaceous weeds so as to create, release, or restore desired plant communities that are consistent with achievable, ecological site, steady state descriptions.

Criteria

- Herbaceous weed treatment will be applied to achieve the recorded desired level of control of the target species and protect the recorded desired species within the plant community. NRCS will not develop biological or chemical recommendations except biological control by grazing animals.
- Ecological site description (ESD), state and transition models will be employed in development of treatment specifications that are ecologically sound and defensible. The treatments must be congruent with dynamics of the ecological site(s) and keyed



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to state and plant community phases that have the potential for supporting the desired plant community. If an ESD is not available, base specifications on the best approximation of the desired plant community composition, structure, and function.

- Herbaceous weed treatment will include post treatment measures as needed to achieve the recorded resource management objectives.
- Treatment periods will accommodate reproduction and other life-cycle requirements of target recorded wildlife and pollinator species, and the resultant plant community will enhance the plant community composition and structure to meet their needs.
- Treatments will be conducted when target weed species are most vulnerable and will promote restoration of the desired plant communities.
- When herbicides are used, environmental hazards and site-specific application criteria listed on the pesticide label must be followed.
- Access to treated or targeted area will be controlled based on management methods applied and restrictions as listed on chemical labels.



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Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, obtain an appropriate management plan based upon land use where this enhancement is planned. The plan will be based on NRCS Conservation Practice Standards Prescribed Grazing (Code 528), Forest Stand Improvement (Code 666), or Upland Wildlife Habitat Management (Code 645). The management plan must identify desired plant community composition, structure, and function. The management strategy must complement NRCS Conservation Practice Standards Herbaceous Weed Treatment (Code 315) in supporting upward trends. (NRCS will provide technical assistance, as needed.)
- o Prior to implementation, develop a map indicating areas to be treated as a part of the management plan.
- o During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- o During implementation, keep records of all treatments, including method, timing, and amount applied as recommended by NRCS. Refer to NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315).

Treatment Date	
Treatment Method	
Amount Applied (acres)	

Also include the following:

- *Area (s) on farm where control methods were applied*
- *If biological control used, the number and species of grazing animals utilized, and/or number and species of introduced insect colonies distributed and the planned time frame of the treatment.*



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- *If grazing by livestock is chosen as the biological treatment then a grazing plan must be developed and followed using the Prescribed Grazing (528) conservation practice standard.*
- *If chemical control chosen then a chemical application plan must be developed using the Windows Pesticide Screening Tool (WIN-PST). NRCS can provide assistance with the tool.*
 - *Provide a record of the pesticide rates, substances, etc.*
- *Photograph (s) of treatment (s) applied.*
- During implementation, develop a map indicating treated areas.
- After implementation, make the following records and documents available for review by NRCS to verify implementation of the enhancement:
 - Monitoring data records associated with management plan that measures trend toward desired plant community.
 - Treatment records including timing, method, and amount (acres) applied.
 - A map of treated areas.

NRCS will:

- Prior to implementation and as needed, NRCS will provide technical assistance in:
 - *Identifying the target recorded wildlife and pollinator species.*
 - *Identifying the targeted, herbaceous weeds and selecting the best control method through the completion of the Herbaceous Weed Treatment Job Sheet (JS-MO315).*
 - *Identifying the desired plant species.*
 - *Developing treatment specifications when utilizing grazing animals that are ecologically sound and defensible based on the Ecological Site Description (ESD),*



CONSERVATION STEWARDSHIP PROGRAM

state and transition models. Specifying the desired plant community composition, structure, and function.

- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315) as it relates to implementing this enhancement.
- o Prior to implementation, provide and explain (depending on land use where the enhancement will be implemented) NRCS Conservation Practice Standard Prescribed Grazing (Code 528), Forest Stand Improvement (Code 666), or Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement.
- o Prior to implementation, provide assistance as needed in the development of the management plan or completing state specific job sheet for NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315) to treat targeted species.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, review documentation and records to verify implementation of the enhancement.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E315132Z - Herbaceous weed treatment that helps create desired plant communities and habitats consistent with the ecological site

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E315133Z

Herbaceous weed treatment for inadequate structure and composition that helps create desired plant communities and habitats consistent with the ecological site

Conservation Practice 315: Herbaceous Weed Treatment

APPLICABLE LAND USE: Range; Forest

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Mechanical, chemical, or biological, herbaceous weed treatment will be employed to control targeted, herbaceous weeds so as to create, release, or restore desired plant communities that are consistent with achievable, ecological site, steady state descriptions.

Criteria

- Herbaceous weed treatment will be applied to achieve the recorded desired level of control of the target species and protect the recorded desired species within the plant community. NRCS will not develop biological or chemical recommendations except biological control by grazing animals.
- Ecological site description (ESD), state and transition models will be employed in development of treatment specifications that are ecologically sound and defensible.



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- The treatments must be congruent with dynamics of the ecological site(s) and keyed to state and plant community phases that have the potential for supporting the desired plant community. If an ESD is not available, base specifications on the best approximation of the desired plant community composition, structure, and function.
- Treatment periods will accommodate reproduction and other life-cycle requirements of target (recorded) wildlife and pollinator species, and the resultant plant community will enhance the plant community composition and structure to meet their needs.
- Herbaceous weed treatment will include post treatment measures as needed to achieve recorded resource management objectives.
- Treatments will be conducted when target weed species are most vulnerable and will promote restoration of the desired plant communities.
- When herbicides are used, environmental hazards and site-specific application criteria listed on the pesticide label must be followed.
- Access to treated or targeted area will be controlled based on management methods applied and restrictions as listed on chemical labels.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, obtain an appropriate management plan based upon land use where this enhancement is planned. The plan will be based on NRCS Conservation Practice Standards Prescribed Grazing (Code 528), Forest Stand Improvement (Code 666), or Upland Wildlife Habitat Management (Code 645). The management plan must identify desired plant community composition, structure, and function. The management strategy must complement NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315) in supporting upward trends. (NRCS will provide technical assistance, as needed.)
- o Prior to implementation, develop a map indicating areas to be treated as a part of the management plan.
- o During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- o During implementation, keep records of all treatments, including method, timing, and amount applied as recommended by NRCS. Refer to NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315).

Treatment Date	
Treatment Method	
Amount Applied (acres)	

Also include the following:

- *Area (s) on farm where control methods were applied*
- *If biological control used, the number and species of grazing animals utilized, and/or number and species of introduced insect colonies distributed and the planned time frame of the treatment.*



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- *If grazing by livestock is chosen as the biological treatment then a grazing plan must be developed and followed using the Prescribed Grazing (528) conservation practice standard.*
- *If chemical control chosen then a chemical application plan must be developed using the Windows Pesticide Screening Tool (WIN-PST). NRCS can provide assistance with the tool.*
 - *Provide a record of the pesticide rates, substances, etc.*
- *Photograph (s) of treatment (s) applied.*
- During implementation, develop a map indicating treated areas.
- After implementation, make the following records and documents available for review by NRCS to verify implementation of the enhancement:
 - Monitoring data records associated with management plan that measures trend toward desired plant community.
 - Treatment records including timing, method, and amount (acres) applied.
 - A map of treated areas.

NRCS will:

- Prior to implementation and as needed, NRCS will provide technical assistance in:
 - *Identifying the target recorded wildlife and pollinator species.*
 - *Identifying the targeted, herbaceous weeds and selecting the best control method through the completion of the Herbaceous Weed Treatment Job Sheet (JS-MO315).*
 - *Identifying the desired plant species.*
- *Developing treatment specifications when utilizing grazing animals that are ecologically sound and defensible based on the Ecological Site Description (ESD), state and transition models. Specifying the desired plant community composition, structure, and function.*



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- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315) as it relates to implementing this enhancement.
- o Prior to implementation, provide and explain (depending on land use where the enhancement will be implemented) NRCS Conservation Practice Standard Prescribed Grazing (Code 528), Forest Stand Improvement (Code 666), or Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement.
- o Prior to implementation, provide assistance as needed in the development of the management plan or completing state specific job sheet for NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315) to treat targeted species.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, review documentation and records to verify implementation of the enhancement.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E315133Z - Herbaceous weed treatment for inadequate structure and composition that helps create desired plant communities and habitats consistent with the ecological site

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E315134Z

Herbaceous weed treatment for plant pest pressures that helps create desired plant communities and habitats consistent with the ecological site

Conservation Practice 315: Herbaceous Weed Treatment

APPLICABLE LAND USE: Pasture; Range; Forest; Associated Ag Land

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Mechanical, chemical, or biological, herbaceous weed treatment will be employed to control targeted, herbaceous weeds so as to create, release, or restore desired plant communities that are consistent with achievable, ecological site, steady state descriptions.

Criteria

- Herbaceous weed treatment will be applied to achieve the recorded desired level of control of the target species and protect the recorded desired species within the plant community. NRCS will not develop biological or chemical recommendations except biological control by grazing animals.
- Ecological site description (ESD), state and transition models will be employed in development of treatment specifications that are ecologically sound and defensible. The



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treatments must be congruent with dynamics of the ecological site(s) and keyed to state and plant community phases that have the potential for supporting the desired plant community. If an ESD is not available, base specifications on the best approximation of the desired plant community composition, structure, and function.

- Herbaceous weed treatment will include post treatment measures as needed to achieve recorded resource management objectives.
- Treatment periods will accommodate reproduction and other life-cycle requirements of recorded target wildlife and pollinator species, and the resultant plant community will enhance the plant community composition and structure to meet their needs.
- Treatments will be conducted when target weed species are most vulnerable and will promote restoration of the desired plant communities.
- When herbicides are used, environmental hazards and site-specific application criteria listed on the pesticide label must be followed.
- Access to treated or targeted area will be controlled based on management methods applied and restrictions as listed on chemical labels.



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Documentation and Implementation Requirements

Participant will:

- Prior to implementation, obtain an appropriate management plan based upon land use where this enhancement is planned. The plan will be based on NRCS Conservation Practice Standards Prescribed Grazing (Code 528), Forest Stand Improvement (Code 666), Forage Harvest Management (Code 511), or Upland Wildlife Habitat Management (Code 645). The management plan must identify desired plant community composition, structure, and function. The management strategy must complement NRCS Conservation Practice Standards Herbaceous Weed Treatment (Code 315) in supporting upward trends. (NRCS will provide technical assistance, as needed.)
- Prior to implementation, develop a map indicating areas to be treated as a part of the management plan.
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- During implementation, keep records of all treatments, including method, timing, and amount applied as recommended by NRCS. Refer to NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315).

Treatment Date	
Treatment Method	
Amount Applied (acres)	

Also include the following:

- *Area (s) on farm where control methods were applied*
- *If biological control used, the number and species of grazing animals utilized, and/or number and species of introduced insect colonies distributed and the planned time frame of the treatment.*



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- *If grazing by livestock is chosen as the biological treatment then a grazing plan must be developed and followed using the Prescribed Grazing (528) conservation practice standard.*
- *If chemical control chosen then a chemical application plan must be developed using the Windows Pesticide Screening Tool (WIN-PST). NRCS can provide assistance with the tool.*
 - *Provide a record of the pesticide rates, substances, etc.*
- *Photograph (s) of treatment (s) applied.*
- During implementation, develop a map indicating treated areas.
- After implementation, make the following records and documents available for review by NRCS to verify implementation of the enhancement:
 - Monitoring data records associated with management plan that measures trend toward desired plant community.
 - Treatment records including timing, method, and amount (acres) applied.
 - A map of treated areas.

NRCS will:

- Prior to implementation and as needed, NRCS will provide technical assistance in:
 - *Identifying the target recorded wildlife and pollinator species.*
 - *Identifying the targeted, herbaceous weeds and selecting the best control method through the completion of the Herbaceous Weed Treatment Job Sheet (JS-MO315).*
 - *Identifying the desired plant species.*
Developing treatment specifications when utilizing grazing animals that are ecologically sound and defensible based on the Ecological Site Description (ESD), state and transition models. Specifying the desired plant community composition, structure, and function.



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- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315) as it relates to implementing this enhancement.
- o Prior to implementation, provide and explain (depending on land use where the enhancement will be implemented) NRCS Conservation Practice Standard Prescribed Grazing (Code 528), Forest Stand Improvement (Code 666), or Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement.
- o Prior to implementation, provide assistance as need in the development of the management plan or completing state specific job sheet for NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315) to treat targeted species.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, review documentation and records to verify implementation of the enhancement.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E315136Z - Herbaceous weed treatment for plant pest pressures that helps create desired plant communities and habitats consistent with the ecological site

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E327136Z1

Conservation cover to provide food habitat for pollinators and beneficial insects

Conservation Practice 327: Conservation

**APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Forest; Associated Ag Land, Farmstead**

**RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate
Habitat**

ENHANCEMENT LIFE SPAN: 5 Years

Enhancement Description

Seed or plug nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, grassed waterways, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.

Criteria

- Habitat areas must be at least 0.5 acres for each 40 acres of the selected land use. Where the selected land use is less than 40 acres, the required amount of habitat will be reduced according to the ratio of 0.5 acres to 40 acres. Where the selected land use is greater than 40 acres, the 0.5 acre habitat areas(s) may be a single site or interspersed sites in the larger land use areas as agreed to by the NRCS State Biologist.



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- Establish habitat for pollinators (A) and beneficial insects (B) as described below:

A. Pollinators

1. NRCS at the state level will develop lists of plants suitable for pollinator habitat. The lists must emphasize as many native species as practical.
2. The habitat planting will include (as a minimum) three early, three mid, and three late flowering species from the NRCS state list including forbs, legumes, vines, shrubs, and/or trees. Plants that produce toxic nectar will not be planted.
3. Any other use of the pollinator habitat area must not compromise its intended purpose.

B. Beneficial insects

1. Identify pest species and associated beneficial insects targeted for control.
2. Inventory existing conditions on the farm to determine habitat needs of selected beneficial insects, including:
 - (a) Permanent insectary sites,
 - (b) Augmentation of existing hedgerows, field borders or other odd areas adjacent to fields, and/or
 - (c) Trap crop areas.
3. Plant selection should be matched to attract identified beneficial insects.



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4. Beneficial insect habitat may include either annual or perennial cover. If annual cover is used, the cover must be replanted each year during the life of the contract.
5. NRCS at the state level will develop lists of plants suitable for beneficial insect habitat. The lists must emphasize as many native species as practical.

C. Planting criteria for both pollinators and beneficial insects

1. Site selection should consider existing weed pressures and available methods of control, delay planting if high weed pressure requires aggressive treatment.
2. Site preparation and plant establishment shall be accomplished according to the appropriate NRCS conservation practice and specifications.
3. Successful establishment is when the planting is providing at least 80% soil cover, visually estimated, and that the resultant cover consists primarily of the early, mid, and late blooming species planted for pollinators and/or other beneficial insects.
4. Insecticides should not be used in the habitat planting area.
5. Herbicides are allowed during site preparation (prior to planting) when it is necessary to eliminate competing weeds from a planting area in order for nectar and pollen producing plants to establish.
6. After a pollinator enhancement has been planted, herbicides may be spot-sprayed to remove broad-leaf weeds, or grass-selective herbicides may be applied to larger areas to eliminate persistent weedy grasses. Similarly, the entire site may be mowed in the first year post-planting to reduce annual or biennial weeds that persist (site should be mowed just before dominant annual weeds flower).



CONSERVATION STEWARDSHIP PROGRAM

D. Operation and maintenance for both pollinators and beneficial insects

1. Management and/or maintenance activities such as mowing, haying, burning, or grazing must be conducted outside of the growing season or bloom period.
2. Maintenance should be done on less than 1/3 of the acreage during any given year, except during the first year post-planting.
3. Insecticides should not be used in the habitat planting area. Even non-synthetic botanical insecticides can harm beneficial insects. If adjacent crop areas are treated with insecticides use one or more of the following actions to limit insecticides in the pollinator habitat area:
 - (a) Create insecticide free buffers in the first 25 feet of crop area,
 - (b) Use application methods that minimize drift to the adjacent habitat,
 - (c) Apply active ingredients in the evening when most insect pollinators are not active.
4. The planted habitat areas must be regularly inspected for invasive and/or noxious plants or other plants that may compromise the purpose of this enhancement. Undesirable species should be controlled using the method least damaging method, for example, spot-spraying with herbicide or physical removal.
5. If habitat is part of an organic farming operation, only materials allowed according to the USDA National Organic Program's National List of Allowed and Prohibited Substances may be used.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, develop a map showing the location of proposed habitat areas with notes on land use adjacent to proposed habitat areas to discuss with NRCS staff.
- o During implementation, purchase specified seed mix or plant materials that meets pollinator-specific seeding or planting requirements provided by NRCS based on the *Missouri NRCS Conservation Practice Standard Conservation Cover (327) and Upland Wildlife Habitat Management (645)*, and the *Wildlife and Pollinator Plantings Job Sheet (JS-MO645)*. *The desired method of determining seed mixes is to use the Missouri Wildlife Seed Calculator. Minimum seed requirements will be based on the land slope of each area to be seeded:*
 - *Minimum seeding rate of 15 Pure Live Seeds (PLS) per square foot for all species, maximum of 30 PLS per square foot.*
 - *Minimum of 20 native flowering forb species with at least 3 species in each bloom period (spring, summer, and fall).*
 - *No single forb species will be included at rates over 10 percent PLS per square foot or less than 0.1 percent PLS per square foot.*
 - *Annual/biennial forbs will not exceed 10 percent (combined) of the mix by PLS per square foot. If annual species are used, these species must be replanted each year during the life of the contract.*
 - *Grasses are not required in the mix for land slopes less than 5 percent but may comprise a maximum of 25 percent of PLS per square foot, at the planner's discretion, if erosion or applicability of management is a concern.*
 - *In portions of the field with land slopes greater than or equal to 5 percent, the planner will increase the total mix to 40 PLS per square foot with 10 PLS per square foot of native midgrass, such as little bluestem, based on surrounding land uses, size of planting, and other site characteristics, with the following exceptions:*
 - *Areas of concentrated water flow will need to be evaluated by the planner. Where continued erosion is a concern, seed these small areas with 20 PLS per square foot of native midgrass with the total PLS per square foot not to exceed 50 PLS per*



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square foot. If 20 PLS per square foot of native midgrass seeding will not be expected to keep the area in compliance (sheet & rill erosion to T) and control ephemeral gullies, the area will be ruled ineligible and excluded unless fixed using the appropriate conservation practice.

- *See the Upland Wildlife Habitat Management (645) conservation practice standard and the pollinator foraging habitat specifications as shown in the Native Pollinators Job Sheet (JS-MO643 Native) for additional criteria.*
 - *A list of approved forbs may be found in the Native Forb Information Sheet (IS-MO643 Native Forb).*
- o During implementation, follow habitat establishment guidance provided in the Missouri NRCS Conservation Practice Standard Conservation Cover (327) *and Upland Wildlife Habitat Management (645), and the Wildlife and Pollinator Plantings Job Sheet (JS-MO645).*
- o After implementation, provide for review by NRCS a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred. *The Native Pollinators Job Sheet (JS-MO643 Native Pollinators) provides a list of approved management and/or maintenance activities and time frames for implementation. At a minimum, during the first growing season after planting, the participant will mow the planted area 1 to 3 times depending on re-growth to reduce competition from non-seeded volunteer plants (i.e. foxtail, ragweed, curly dock, etc). Management/maintenance after the 1st growing season will occur on 1/3 or less of the acres.*
- o After implementation, take and provide for review photographs as documentation of pollinator habitat area condition. *The participant will take photos of the planting site within 2 weeks of the planting date (preferably taken on the day of planting) to demonstrate that proper seedbed prep was accomplished prior to planting. Photos will also be taken to demonstrate that establishment maintenance (mowing) has occurred. For all following fiscal years of the contract, photos will be taken to document that the habitat areas are being maintained and are establishing, preferably during the growing season showing blooming plants.*



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- o *After implementation, provide NRCS with documentation of seedbed preparation, dates planted, planting method, species planted (provide seed tags), planting rate, and planting depth, as a minimum.*

NRCS will:

- o Prior to implementation, discuss with participant the proposed habitat areas to verify they are in locations suitable for the enhancement.
- o *Prior to implementation, NRCS will document the slope of the land surface of all planned areas and will advise the participant on the appropriate seeding specifications for each area to be planted.*
- o Prior to implementation, provide participant with suitable plant lists based on *Missouri job sheets*. *The Native Forb Information Sheet (IS-MO643 Native Forb) will be provided and discussed.*
- o Prior to implementation, provide and explain Missouri specifications for NRCS Conservation Practice Standard Conservation Cover (327).
- o Prior to implementation, provide participant with a recommended seed mix and planting specifications per above criteria (grass/forb ratio; number of forb species per bloom period for pollinator habitat plantings). *Provide all details for successful stand establishment.*
- o *Prior to implementation, a completed Wildlife and Pollinator Plantings Job Sheet (IS-MO645 Wildlife and Pollinator Plantings) and Seeding Plan created from the Missouri Wildlife Seed Calculator will be provided. At a minimum, any needed grass species and rates will be planned, along with a suitable number of seeds per square foot of Forbs/Legumes based on land slope which will allow a seed vendor to select the appropriate species and amounts to meet the Pollinator and Brood-rearing Plantings specification in the Wildlife and Pollinator Plantings Job Sheet (IS-MO 645 Wildlife and Pollinator Plantings).*
- o After implementation, verify successful establishment (per planting criteria above) by review of documentation and photographs. *After implementation, document the seeding*



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mixes that were actually applied and the document the land slopes of all the areas planted.

- o *After implementation, complete a Conservation Cover Implementation Requirements form for each planting to document completion of the enhancement. The form is available in the Missouri NRCS Field Office Technical Guide, Section IV, Conservation Cover (327). Other acceptable forms to document completion are printed Missouri Wildlife Seed Calculator with detailed summaries of applied activities on each area planted. Land slope will be documented for all plantings.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E327137Z

Conservation cover to provide cover and shelter habitat for pollinators and beneficial insects

Conservation Practice 327: Conservation Cover

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Seed or plug nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, grassed waterways, shelterbelts, hedgerows, wind breaks, conservation cover, and riparian forest and herbaceous buffers.

Criteria

- Habitat areas must be at least 0.5 acres for each 40 acres of the selected land use. Where the selected land use is less than 40 acres, the required amount of habitat will be reduced according to the ratio of 0.5 acres to 40 acres. Where the selected land use is greater than 40 acres, the 0.5 acre habitat areas(s) may be a single site or interspersed sites in the larger land use areas as agreed to by the NRCS State Biologist.
- Establish habitat for pollinators (A) and beneficial insects (B) as described below:



CONSERVATION STEWARDSHIP PROGRAM

A. Pollinators

1. **NRCS at the state level will develop lists of plants suitable for pollinator habitat. The lists must emphasize as many native species as practical.**
2. The habitat planting will include (as a minimum) three early, three mid, and three late flowering species from the NRCS state list including forbs, legumes, vines, shrubs, and/or trees. Plants that produce toxic nectar will not be planted.
3. Any other use of the pollinator habitat area must not compromise its intended purpose.

B. Beneficial insects

1. Identify pest species and associated beneficial insects targeted for control.
2. Inventory existing conditions on the farm to determine habitat needs of selected beneficial insects, including:
 - (a) Permanent insectary sites,
 - (b) Augmentation of existing hedgerows, field borders or other odd areas adjacent to fields, and/or
 - (c) Trap crop areas.
3. Plant selection should be matched to attract identified beneficial insects.
4. Beneficial insect habitat may include either annual or perennial cover. If annual cover is used, the cover must be replanted each year during the life of the contract.



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Lists of plants suitable for beneficial insect habitat will be developed by NRCS at the state level. The lists must emphasize as many native species as practical.

C. Planting criteria for both pollinators and beneficial insects

1. Site selection should consider existing weed pressures and available methods of control, delay planting if high weed pressure requires aggressive treatment.
2. Site preparation and plant establishment shall be accomplished according to the appropriate NRCS conservation practice and specifications.
3. Successful establishment is when the planting is providing at least 80% soil cover, visually estimated, and that the resultant cover consists primarily of the early, mid, and late blooming species planted for pollinators and/or other beneficial insects.
4. Insecticides should not be used in the habitat planting area.
5. Herbicides are allowed during site preparation (prior to planting) when it is necessary to eliminate competing weeds from a planting area in order for nectar and pollen producing plants to establish.
6. After a pollinator enhancement has been planted, herbicides may be spot-sprayed to remove broad-leaf weeds, or grass-selective herbicides may be applied to larger areas to eliminate persistent weedy grasses. Similarly, the entire site may be mowed in the first year post-planting to reduce annual or biennial weeds that persist (site should be mowed just before dominant annual weeds flower).



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D. Operation and maintenance for both pollinators and beneficial insects

1. Management and/or maintenance activities such as mowing, haying, burning, or grazing must be conducted outside of the growing season or bloom period.

E. Maintenance should be done on less than 1/3 of the acreage during any given year, except during the first year post-planting.

2. Insecticides should not be used in the habitat planting area. Even non-synthetic botanical insecticides can harm beneficial insects. If adjacent crop areas are treated with insecticides use one or more of the following actions to limit insecticides in the pollinator habitat area:

(a) Create insecticide free buffers in the first 25 feet of crop area,

(b) Use application methods that minimize drift to the adjacent habitat,

(c) Apply active ingredients in the evening when most insect pollinators are not active.

3. The planted habitat areas must be regularly inspected for invasive and/or noxious plants or other plants that may compromise the purpose of this enhancement. Undesirable species should be controlled using the method least damaging method, for example, spot- spraying with herbicide or physical removal.

4. If habitat is part of an organic farming operation, only materials allowed according to the USDA National Organic Program's National List of Allowed and Prohibited Substances may be used.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, develop a map showing the location of proposed habitat areas with notes on land use adjacent to proposed habitat areas to discuss with NRCS staff.
- o During implementation, purchase a specified seed mix or plant materials that meet pollinator-specific seeding or planting requirements based on the *Missouri NRCS Conservation Practice Standard Conservation Cover (327) and Upland Wildlife Habitat Management (645) and the Wildlife and Pollinator Plantings Job Sheet (JS-MO645)*. The desired method of determining seed mixes is to use the *Missouri Wildlife Seed Calculator*. Minimum seed requirements using this alternate method will be based on the land slope of each area to be seeded:
 - o Minimum seeding rate of 15 Pure Live Seeds (PLS) per square foot for all species, maximum of 30 PLS per square foot.
 - o Minimum of 20 native flowering species with at least 3 species in each bloom period (spring, summer, and fall).
 - o No single forb species will be included at rates over 10 percent PLS per square foot or less than 0.1 percent PLS per square foot.
 - o Annual/biennial forb species will not exceed 10 percent (combined) of the mix by PLS per square foot. If annual species are used, these species must be replanted each year during the life of the contract.
 - o Grasses are not required in the mix for areas with slopes less than 5 percent but may comprise a maximum of 25 percent of PLS per square foot, at the planner's discretion, if erosion or applicability of management is a concern.
 - o In portions of the field with slopes greater than or equal to 5 percent, the planner will increase the total mix to 40 PLS per square foot with 10 PLS per square foot of native midgrass, such as little bluestem, based on surrounding land uses, size of planting, and other site characteristics, with the following exceptions:
 - o Areas of concentrated water flow will need to be evaluated by the planner. Where continued erosion is a concern, seed these small areas with 20 PLS per square foot of native midgrass with the total PLS per square foot of the mixture not to exceed 50 PLS per square foot. If adding 20 PLS per square foot of native midgrass seeding will not



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- be expected to keep the area in compliance (sheet and rill erosion to T) and control ephemeral gullies, the area will be ruled ineligible and excluded unless fixed using the appropriate conservation practice.*
- o *See the Upland Wildlife Habitat Management (645) conservation practice standard for additional information.*
 - o During implementation, follow habitat establishment guidance provided by NRCS in the Missouri NRCS specifications for Conservation Practice Standard Conservation Cover (327) and Upland Wildlife Habitat Management (645), and the Wildlife and Pollinator Plantings Job Sheet (JS-MO645).
 - o After implementation, provide for review by NRCS a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred. *The Native Pollinators Job Sheet (JS-MO643 Native Pollinators) provides a list of approved management and/or maintenance activities and time frames for implementation. At a minimum, during the first growing season after planting, the participant will mow the planted area 1 to 3 times depending on re-growth to reduce competition from non-seeded volunteer plants (i.e. foxtail, ragweed, curly dock, etc). Management/maintenance after the 1st growing season will occur on 1/3 or less of the acres.*
 - o After implementation, take and provide for review photographs as documentation of pollinator habitat area condition. *The participant will take photos of the planting site within 2 weeks of the planting date (preferably taken on the day of planting) to demonstrate that proper seedbed prep was accomplished prior to planting. Photos will also be taken to demonstrate that establishment maintenance (mowing) has occurred. For all following fiscal years of the contract, photos will be taken to document that the habitat areas are being maintained and are establishing, preferably during the growing season showing blooming plants.*
 - o After implementation, provide NRCS with documentation of seedbed preparation, dates planted, planting method, species planted (provide seed tags), planting rates, and planting depth, as a minimum.



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NRCS will:

- o Prior to implementation, discuss with participant the proposed habitat areas to verify they are in locations suitable for the enhancement.
- o *Prior to implementation, NRCS will document the slope of the land surface of all planned areas and will advise the participant on the appropriate seeding specifications for each area to be planted.*
- o Prior to implementation, provide participant with suitable plant lists based on *Missouri job sheets. The Native Forb Information Sheet (IS-MO643 Native Forb) will be provided and discussed.*
- o Prior to implementation, provide and explain Missouri specifications for NRCS Conservation Practice Standard Conservation Cover (327).
- o Prior to implementation, provide participant with a recommended seed mix and planting specifications per above criteria (grass/forb ratio; number of forb species per bloom period for pollinator habitat plantings). *Provide all details for successful stand establishment.*
- o *Prior to implementation, a completed Wildlife and Pollinator Plantings Job Sheet (JS-MO645 Wildlife and Pollinator Plantings) and Seeding Plan created from the Missouri Wildlife Seed Calculator will be provided. At a minimum, any needed grass species and rates will be planned, along with a suitable number of seeds per square foot of Forbs/Legumes based on land slope which will allow a seed vendor to select the appropriate species and amounts to meet the Pollinator and Brood-rearing Plantings specification in the Wildlife and Pollinator Plantings Job Sheet (JS-MO 645 Wildlife and Pollinator Plantings).*
- o After implementation, verify successful establishment (per planting criteria above) by review of documentation and photographs. *After implementation, document the seeding mixes that were actually applied, and document the land slopes of all the areas planted.*
- o *After implementation, complete Conservation Cover Implementation Requirements form for each planting to document completion of the enhancement. The form is available in the Missouri NRCS Field Office Technical Guide, Section IV, Conservation Cover (327). Other acceptable forms to document completion are printed Missouri*



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Wildlife Seed Calculator with detailed summaries of applied activities on each area planted. Land slope will be documented for all plantings.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



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CONSERVATION ENHANCEMENT ACTIVITY

E327139Z

Conservation cover to provide habitat continuity for
pollinators and beneficial insects

Conservation Practice 327: Conservation Cover

**APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Forest; Associated Ag Land; Farmstead**

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Seed or plug nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, grassed waterways, shelterbelts, hedgerows, wind breaks, conservation cover, and riparian forest and herbaceous buffers.

Criteria

- Habitat areas must be at least 0.5 acres for each 40 acres of the selected land use. Where the selected land use is less than 40 acres, the required amount of habitat will be reduced according to the ratio of 0.5 acres to 40 acres. Where the selected land use is greater than 40 acres, the 0.5 acre habitat areas(s) may be a single site or interspersed sites in the larger land use areas as agreed to by the NRCS State Biologist.
- Establish habitat for pollinators (A) and beneficial insects (B) as described below:



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A. Pollinators

1. <<Lists of plants suitable for pollinator habitat will be developed by NRCS at the state level. The lists must emphasize as many native species as practical.
2. The habitat planting will include (as a minimum) three early, three mid, and three late flowering species from the NRCS state list including forbs, legumes, vines, shrubs, and/or trees. Plants that produce toxic nectar will not be planted.
3. Any other use of the pollinator habitat area must not compromise its intended purpose.

B. Beneficial insects

1. Identify pest species and associated beneficial insects targeted for control.
2. Inventory existing conditions on the farm to determine habitat needs of selected beneficial insects, including:
 - (a) Permanent insectary sites,
 - (b) Augmentation of existing hedgerows, field borders or other odd areas adjacent to fields, and/or
 - (c) Trap crop areas.
3. Plant selection should be matched to attract identified beneficial insects.



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4. Beneficial insect habitat may include either annual or perennial cover. If annual cover is used, the cover must be replanted each year during the life of the contract.
5. **Lists of plants suitable for beneficial insect habitat will be developed by NRCS at the state level. The lists must emphasize as many native species as practical.**

C. Planting criteria for both pollinators and beneficial insects

1. Site selection should consider existing weed pressures and available methods of control, delay planting if high weed pressure requires aggressive treatment.
2. Site preparation and plant establishment shall be accomplished according to the appropriate NRCS conservation practice and specifications.
3. Successful establishment is when the planting is providing at least 80% soil cover, visually estimated, and that the resultant cover consists primarily of the early, mid, and late blooming species planted for pollinators and/or other beneficial insects.
4. Insecticides should not be used in the habitat planting area.
5. Herbicides are allowed during site preparation (prior to planting) when it is necessary to eliminate competing weeds from a planting area in order for nectar and pollen producing plants to establish.
6. After a pollinator enhancement has been planted, herbicides may be spot-sprayed to remove broad-leaf weeds, or grass-selective herbicides may be applied to larger areas to eliminate persistent weedy grasses. Similarly, the entire site may be mowed in the first year post-planting to reduce annual or biennial weeds that persist - site should be mowed just before dominant annual weeds flower.



CONSERVATION STEWARDSHIP PROGRAM

D. Operation and maintenance for both pollinators and beneficial insects

1. Management and/or maintenance activities such as mowing, haying, burning, or grazing must be conducted outside of the growing season or bloom period.
 - o Maintenance should be done on less than 1/3 of the acreage during any given year, except during the first year post-planting.
2. Insecticides should not be used in the habitat planting area. Even non-synthetic botanical insecticides can harm beneficial insects. If adjacent crop areas are treated with insecticides use one or more of the following actions to limit insecticides in the pollinator habitat area:
 - (a) Create insecticide free buffers in the first 25 feet of crop area,
 - (b) Use application methods that minimize drift to the adjacent habitat,
 - (c) Apply active ingredients in the evening when most insect pollinators are not active.
3. The planted habitat areas must be regularly inspected for invasive and/or noxious plants or other plants that may compromise the purpose of this enhancement. Undesirable species should be controlled using the method least damaging method, for example, spot- spraying with herbicide or physical removal.
4. If habitat is part of an organic farming operation, only materials allowed according to the USDA National Organic Program's National List of Allowed and Prohibited Substances may be used.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, develop a map showing the location of proposed habitat areas with notes on land use adjacent to proposed habitat areas to discuss with NRCS staff.
- o During implementation, purchase *the* specified seed mix or plant materials that *meet* pollinator-specific seeding or planting requirements provided by NRCS based on the *Missouri NRCS Conservation Practice Standard Conservation Cover (327) and Upland Wildlife Habitat Management (645), and the Wildlife and Pollinator Plantings Job Sheet (JS-MO645). The desired method of determining seed mixes is to use the Missouri Wildlife Seed Calculator. Minimum seed requirements will be based on the land slope of each area to be seeded:*
 - *Minimum seeding rate of 15 Pure Live Seeds (PLS) per square foot for all species, maximum of 30 PLS per square foot.*
 - *Minimum of 20 native flowering forb species with at least 3 species in each bloom period (spring, summer, and fall).*
 - *No single forb species will be included at rates over 10 percent PLS per square foot or less than 0.1 percent PLS per square foot.*
 - *Annual/biennial forbs will not exceed 10 percent (combined) of the mix by PLS per square foot. If annual species are used, these species must be replanted each year during the life of the contract.*
 - *Grasses are not required in the mix for land slopes less than 5 percent but may comprise a maximum of 25 percent of PLS per square foot, at the planner's discretion, if erosion or applicability of management is a concern.*
 - *In portions of the field with land slopes greater than or equal to 5 percent, the planner will increase the total mix to 40 PLS per square foot with 10 PLS per square foot of native midgrass, such as little bluestem, based on surrounding land uses, size of planting, and other site characteristics, with the following exceptions:*
 - *Areas of concentrated water flow will need to be evaluated by the planner. Where continued erosion is a concern, seed these small areas with 20 PLS per square foot of native midgrass with the total PLS per square foot not to exceed 50 PLS per square foot. If 20 PLS per square foot of native midgrass seeding will not be expected to keep the area in compliance (sheet & rill erosion to T) and control*



CONSERVATION STEWARDSHIP PROGRAM

- ephemeral gullies, the area will be ruled ineligible and excluded unless fixed using the appropriate conservation practice.*
- *See the Upland Wildlife Habitat Management (645) conservation practice standard and the pollinator foraging habitat specifications as shown in the Native Pollinators Job Sheet (JS-MO643 Native) for additional criteria.*
 - *A list of approved forbs may be found in the Native Forb Information Sheet (IS-MO643 Native Forb).*
- o During implementation, follow habitat establishment guidance provided in the Missouri NRCS Conservation Practice Standard Conservation Cover (327) and Upland Wildlife Habitat Management (645), and the Wildlife and Pollinator Plantings Job Sheet (JS-MO645).
- o After implementation, provide for review by NRCS a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred. *The Native Pollinators Job Sheet (JS-MO643 Native Pollinators) provides a list of approved management and/or maintenance activities and time frames for implementation. At a minimum, during the first growing season after planting, the participant will mow the planted area 1 to 3 times depending on re-growth to reduce competition from non-seeded volunteer plants (i.e. foxtail, ragweed, curly dock, etc). Management/maintenance after the 1st growing season will occur on 1/3 or less of the acres.*
- o After implementation, take and provide for review photographs as documentation of pollinator habitat area condition. *The participant will take photos of the planting site within 2 weeks of the planting date (preferably taken on the day of planting) to demonstrate that proper seedbed prep was accomplished prior to planting. Photos will also be taken to demonstrate that establishment maintenance (mowing) has occurred. For all following fiscal years of the contract, photos will be taken to document that the habitat areas are being maintained and are establishing, preferably during the growing season showing blooming plants.*
- o After implementation, provide NRCS with documentation of seedbed preparation, dates planted, planting method, species planted (provide seed tags), planting rate, and planting depth, as a minimum.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o Prior to implementation, discuss with participant the proposed habitat areas to verify they are in locations suitable for the enhancement.
- o *Prior to implementation, NRCS will document the slope of the land surface of all planned areas and will advise the participant on the appropriate seeding specifications for each area to be planted.*
- o Prior to implementation, provide participant with suitable plant lists based on *Missouri job sheets. The Native Forb Information Sheet (IS-MO643 Native Forb) will be provided and discussed.*
- o Prior to implementation, provide and explain Missouri specifications for NRCS Conservation Practice Standard Conservation Cover (327).
- o Prior to implementation, provide participant with a recommended seed mix and planting specifications per above criteria (grass/forb ratio; number of forb species per bloom period for pollinator habitat plantings). *Provide all details for successful stand establishment.*
- o *Prior to implementation, a completed Wildlife and Pollinator Plantings Job Sheet (IS-MO645 Wildlife and Pollinator Plantings) and Seeding Plan created from the Missouri Wildlife Seed Calculator will be provided. At a minimum, any needed grass species and rates will be planned, along with a suitable number of seeds per square foot of Forbs/Legumes based on land slope which will allow a seed vendor to select the appropriate species and amounts to meet the Pollinator and Brood-rearing Plantings specification in the Wildlife and Pollinator Plantings Job Sheet (IS-MO 645 Wildlife and Pollinator Plantings).*
- o After implementation, verify successful establishment (per planting criteria above) by review of documentation and photographs. *After implementation, document the seeding mixes that were actually applied and document the land slopes of all the areas planted.*
- o *After implementation, complete a Conservation Cover Implementation Requirements form for each planting to document completion of the enhancement. The form is available in the Missouri NRCS Field Office Technical Guide, Section IV, Conservation Cover (327). Other acceptable forms to document completion are printed Missouri*



CONSERVATION STEWARDSHIP PROGRAM

Wildlife Seed Calculator with detailed summaries of applied activities on each area planted. Land slope will be documented for all plantings.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328101I

Improved resource conserving crop rotation to reduce water erosion

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.
- Crop rotation must produce a positive trend in the Organic Matter (OM) sub factor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)



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- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The improved resource conserving crop rotation shall include at least one of the following (refer to State Specific List of Resource Conserving Crops):
 - o Additional growing year for perennial resource conserving crop
 - o Perennial resource conserving crop (grass or grass/legume) substituted for a row crop
 - o If current perennial resource conserving crop is a legume, change to a perennial grass or grass/legume crop

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop. Note all improvements to the existing Resource Conserving Crop Rotation.



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Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three year crop rotation.
- o Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).



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- o Prior to implementation, verify the planned crop rotation improves the current Resource Conserving Crop Rotation.
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____ OM subfactor value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328101R

Resource conserving crop rotation to reduce water erosion

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.
- Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)



CONSERVATION STEWARDSHIP PROGRAM

- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The crop rotation shall include at least one of the following types of resource conserving crops (refer to State Specific List of Resource Conserving Crops):
 - o With at least one other crop in the rotation, include a perennial grass grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a legume that is grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a legume-grass mixture that is grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a grass-forbs or legumegrass-forbs mixture, in which at least the grass component of the mixture is grown at least 2 years from time of planting, or
 - o With at least two other crops in the rotation, include a small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a



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green manure, whether interseeded or planted after small grain harvest. Neither the small grain residue nor the cover crop shall be harvested or grazed.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.



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NRCS will:

- As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three year crop rotation.
- Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).
- Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____ OM subfactor value = _____

- During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328101Z

Conservation crop rotation on recently converted CRP grass/legume cover for water erosion

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Implement a crop rotation management system on crop land acres that have recently converted from CRP grass/legume conservation cover to annual planted crops. Crop rotation minimizes disturbance resulting in a Soil Tillage Intensity Rating (STIR) less than 10 and reduces soil erosion from water to below soil tolerance (T) level. The current NRCS wind and water erosion prediction technologies must be used to document the rotation, soil erosion estimate, and STIR calculations. *This enhancement is limited to acres where the conversion event took place not more than 2 years prior. Enhancement not applicable on hayland.

Criteria

- Enhancement limited to acres where the conversion from Conservation Reserve Program (CRP) grass/legume conservation cover to annual cropland took place not more than 2 years prior to enrollment in Conservation Stewardship Program.



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- This enhancement is not applicable on hayland.
- Crops shall be grown in a planned sequence as outlined in the implementation requirements.
- The crop rotation must include a minimum of three different crop types. For the purpose of this enhancement a cover crop is considered a different crop.
- Select crops, a tillage system, and cropping sequence that will produce sufficient and timely quantities of biomass or crop residue which, in conjunction with other practices in the management system, will reduce soil erosion from water to below soil tolerance (T) level (average annual soil loss).
- Crop management must minimize soil disturbance resulting in a Soil Tillage Intensity Rating (STIR) less than 10 for the crop rotation (management STIR value).
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)



CONSERVATION STEWARDSHIP PROGRAM

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o As needed, provide additional assistance to the participant as requested. Prior to implementation, verify the enhancement is planned for acres where the conversion from CRP grass/legume conservation cover to annual cropland took place no more than 2 years prior to enrollment in CSP.

Date of Conversion: _____

- o Prior to implementation, verify the enhancement is not planned on hayland.
- o Prior to implementation, use information provided from the participant to calculate soil loss estimates and STIR calculations using the current NRCS approved wind and water erosion prediction technologies. The planned rotation must meet the enhancement



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criteria of a management STIR value of less than 10 and average annual soil erosion from water less than "T".

"T" = _____ t/ac/year Soil erosion = _____ t/ac/year STIR value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate soil loss estimates and STIR calculations. The applied rotation must meet the enhancement criteria above.

Soil erosion = _____ t/ac/year and STIR value = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328106I

Improved resource conserving crop rotation for soil organic matter improvement

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.



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- Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)
- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The improved resource conserving crop rotation shall include at least one of the following (refer to State Specific List of Resource Conserving Crops):
 - o Additional growing year for perennial resource conserving crop
 - o Perennial resource conserving crop (grass or grass/legume) substituted for a row crop
 - o If current perennial resource conserving crop is a legume, change to a perennial grass or grass/legume crop



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop. Note all improvements to the existing Resource Conserving Crop Rotation.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three year crop rotation.
- o Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).
- o Prior to implementation, verify the planned crop rotation improves the current Resource Conserving Crop Rotation.
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____ OM subfactor value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328106R

Resource conserving crop rotation for soil organic matter improvement

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.
- Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)



CONSERVATION STEWARDSHIP PROGRAM

- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The crop rotation shall include at least one of the following types of resource conserving crops (refer to State Specific List of Resource Conserving Crops):
 - o With at least one other crop in the rotation, include a perennial grass grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a legume that is grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a legume-grass mixture that is grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a grass-forbs or legumegrass-forbs mixture, in which at least the grass component of the mixture is grown at least 2 years from time of planting, or



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o With at least two other crops in the rotation, include a small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a green manure, whether interseeded or planted after small grain harvest.

Neither the small grain residue nor the cover crop shall be harvested or grazed.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field		Crop	Field Operation	Timing of Field Operation (month/year)



CONSERVATION STEWARDSHIP PROGRAM

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three year crop rotation.
- o Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____ OM subfactor value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328106Z1

Soil health crop rotation

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

PRACTICE LIFE SPAN: 1 Year

Enhancement Description

Implement a crop rotation which addresses all four principle components of soil health: increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical and biological disturbance. The rotation will include at least 4 different crop and/or cover crop types (crop types include cool season grass, warm season grass, cool season broadleaf, warm season broadleaf) grown in a sequence that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.

Criteria

- Crops must be grown in a planned sequence as outlined in plan. The crop rotation must include a minimum of four different crop types. For purposes of these criteria a cover crop is considered a different crop.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.



CONSERVATION STEWARDSHIP PROGRAM

- Grow crops that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). (management SCI value)
- The crop rotation includes at least 2 years of high residue crops and/or cover crops per 3 years of the rotation. **(See STATE list of high residue crops)**
- For crop diversity, the planned crop sequence should contain four different crop types; for example a mix of the following: warm season grass; warm season broadleaf; cool season grass; cool season broadleaf.
- Leave crop residue on the soil surface throughout the year.
- Keep a living root system established as much as practical for the given soil, cropping system, and climate area. Maximize root growth periods by planting the next crop or cover crop as soon as practical after the harvest and/or utilize perennial crops in the rotation. Aim to have living roots at least 90% of available growing days. **(See STATE provided guidance of options to maximize living root systems in local climate and cropping systems; determine available growing days and period of no growth, such as frozen periods in the north.)** Show before and after management files from current NRCS wind and water erosion prediction technologies to document benchmark and planned crop rotation to show increase in living root periods.
- Minimize all types of soil disturbance. No more than one crop-year in the rotation will have a Soil Tillage Intensity Rating (STIR) value greater than 20 (crop STIR value) and the rotation will have a positive trending SCI (management SCI value).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current and planned crop rotation and planned field operation(s) used for each crop.

Current Management – Crop Rotation

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)	Crop Type (Warm Grass-WG, Cool Grass-CG, Warm BroadleafWB, Cool Broadleaf-CB)

Current Management – Field Operations

Field	Crop	Field Operation	Timing of Field Operation (month/year)



CONSERVATION STEWARDSHIP PROGRAM

Planned Management – Crop Rotation *(Planned crop rotation must include at least 2 years of high residue crops and/or cover crops per 3 years of the rotation and at least 4 different crop types. Use STATE list of high residue crops.)*

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)	Crop Type (Warm Grass-WG, Cool Grass-CG, Warm BroadleafWB, Cool Broadleaf-CB)

Planned Management – Field Operations

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, take dated pictures with field indicated at least every 3 months to show residue or growing crops.



CONSERVATION STEWARDSHIP PROGRAM

- o During implementation, leave crop residue on the soil surface throughout the year.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.
- o After implementation, provide for review pictures showing residue or growing crops throughout the year.

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o Prior to implementation, verify the planned crop rotation includes at least four different crop types.
- o Prior to implementation, verify the crop rotation includes at least 2 years of high residue crops and/or cover crops per 3 years of the rotation. (Use STATE list of high residue crops.)
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value for each field using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____

OM subfactor value = _____

- o Prior to implementation, use NRCS wind and water erosion prediction technologies to document benchmark and planned crop rotation to show increase in living root periods. During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.



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- o After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____

- o After implementation, review pictures showing residue or growing green crops throughout the year to verify the applied system meets the enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328106Z2

Modifications to improve soil health and increase soil organic matter

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Use of soil health assessment to evaluate impact of current conservation crop rotation in addressing soil organic matter depletion (primary assessment made in Year 1). Modifications to the crop rotation and/or crop management will be made as a result of the assessment results (adding a new crop and/or cover crop to the rotation; making changes to planting and/or tillage system, harvest timing of crops, or termination timing of cover crops). During Year 3 a follow up assessment will be completed to allow time for the modifications to show increased soil organic matter. Modified system must produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.

Criteria

- Crops must be grown in a planned sequence as outlined in plan. The crop rotation must include a minimum of four different crops. For purposes of these criteria a cover crop is considered a different crop.



CONSERVATION STEWARDSHIP PROGRAM

- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- Evaluation of the modified cropping system must produce a soil conditioning index (SCI) of zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation. (management SCI value)
- Soil health assessment will be used to evaluate impact of current conservation crop rotation in addressing soil organic matter depletion, as well as additional soil health objectives of the individual grower (primary assessment made in Year 1). During Year 3, a follow up assessment will be completed to allow time for changes to crop rotation and management activities to have an impact on soil health. No specific soil health assessment type is required or recommended by NRCS, but at a minimum the assessment must account for soil organic matter. The specific assessment selected should provide the grower information based on their soil health objectives.
- Modifications to the crop rotation and/or crop management will be made as a result of the assessment results (adding a new crop and/or cover crop to the rotation; making changes to planting and/or tillage system, harvest timing of crops, or termination timing of cover crops).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current/planned crop rotation and field operation(s) used for each crop.

Current/Planned Management – Crop Rotation

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Current/Planned Management – Field Operations

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o Prior to implementation, select an assessment based on your soil health objectives.



CONSERVATION STEWARDSHIP PROGRAM

Soil Health Assessment

Producer Objective	Year 1 Assessment (Value)	Year 3 Assessment (Value)
Soil Organic Matter (Required)		

- o During implementation, make adjustments to crops, crop rotation, or field operations to improve the system after receiving the results of the soil health assessment. Make Complete in Year 1 and Year 3 at a minimum. Document adjustments below:

Adjusted Management – Crop Rotation

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)



CONSERVATION STEWARDSHIP PROGRAM

Adjusted Management – Field Operations

Field	Crop	Field Operation	Timing of Field Operation (month/year)

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o Prior to implementation, verify the planned crop rotation includes at least four different crops.
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value for each field using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____

OM subfactor value = _____

- o During implementation, evaluate planned adjustments in crops, crop rotation, or field operations to verify the new system meets the enhancement criteria.
- o After implementation, evaluate the applied crop rotation or management using information provided from the participant to calculate SCI values to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328107I

Improved resource conserving crop rotation to improve soil compaction

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.
- Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)



CONSERVATION STEWARDSHIP PROGRAM

- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The improved resource conserving crop rotation shall include at least one of the following (refer to State Specific List of Resource Conserving Crops):
 - o Additional growing year for perennial resource conserving crop
 - o Perennial resource conserving crop (grass or grass/legume) substituted for a row crop
 - o If current perennial resource conserving crop is a legume, change to a perennial grass or grass/legume crop

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop. Note all improvements to the existing Resource Conserving Crop Rotation.



CONSERVATION STEWARDSHIP PROGRAM

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three year crop rotation.
- o Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).



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- o Prior to implementation, verify the planned crop rotation improves the current Resource Conserving Crop Rotation.
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____ OM subfactor value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328107R

Resource conserving crop rotation improve soil compaction

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.
- Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)



CONSERVATION STEWARDSHIP PROGRAM

- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The crop rotation shall include at least one of the following types of resource conserving crops (refer to State Specific List of Resource Conserving Crops):
 - o With at least one other crop in the rotation, include a perennial grass grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a legume that is grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a legume-grass mixture that is grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a grass-forbs or legumegrass-forbs mixture, in which at least the grass component of the mixture is grown at least 2 years from time of planting, or
 - o With at least two other crops in the rotation, include a small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a



CONSERVATION STEWARDSHIP PROGRAM

green manure, whether interseeded or planted after small grain harvest. Neither the small grain residue nor the cover crop shall be harvested or grazed.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.



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- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three year crop rotation.
- o Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____ OM subfactor value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328134I

Improved resource conserving crop rotation to relieve plant pest pressure

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Improve an existing Resource Conserving Crop Rotation. Must enrich an existing rotation which already includes AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.
- Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)



CONSERVATION STEWARDSHIP PROGRAM

- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The improved resource conserving crop rotation shall include at least one of the following (refer to State Specific List of Resource Conserving Crops):
 - o Additional growing year for perennial resource conserving crop
 - o Perennial resource conserving crop (grass or grass/legume) substituted for a row crop
 - o If current perennial resource conserving crop is a legume, change to a perennial grass or grass/legume crop



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop. Note all improvements to the existing Resource Conserving Crop Rotation.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three year crop rotation.
- Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).
- Prior to implementation, verify the planned crop rotation improves the current Resource Conserving Crop Rotation.
- Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____ OM subfactor value = _____

- During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328134R

Resource conserving crop rotation to relieve plant pest pressure

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Establish a Resource Conserving Crop Rotation. Rotation must include AT LEAST one resource conserving crop as determined by the State Conservationist in a minimum three year crop rotation. The crop rotation will reduce soil erosion (water and wind), improve soil health, improve soil moisture efficiency, and reduce plant pest pressures.

Criteria

- Crops shall be grown in a planned sequence. The crop rotation shall include a minimum of two different crops in a minimum three year crop rotation. Rotation must include AT LEAST one resource conserving crop (refer to State Specific List of Resource Conserving Crops). For purposes of these criteria a cover crop is considered a different crop.
- Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value, as determined by the Soil Conditioning Index (SCI) calculated using current NRCS wind and water erosion prediction technologies. (management SCI value)



CONSERVATION STEWARDSHIP PROGRAM

- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress the pest(s) of concern, which may include weeds, insects, and pathogens. Use land grant university or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions, irrigation water availability, and an approved water balance procedure.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- The crop rotation shall include at least one of the following types of resource conserving crops (refer to State Specific List of Resource Conserving Crops):
 - o With at least one other crop in the rotation, include a perennial grass grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a legume that is grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a legume-grass mixture that is grown at least 2 years from time of planting;
 - o With at least one other crop in the rotation, include a grass-forbs or legumegrass-forbs mixture, in which at least the grass component of the mixture is grown at least 2 years from time of planting, or
 - o With at least two other crops in the rotation, include a small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a



CONSERVATION STEWARDSHIP PROGRAM

green manure, whether interseeded or planted after small grain harvest. Neither the small grain residue nor the cover crop shall be harvested or grazed.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three year crop rotation.
- o Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

Management SCI Value = _____ OM subfactor value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.

Management SCI Value = _____ OM subfactor value = _____



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CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328136Z

Leave standing grain crops unharvested to benefit wildlife food sources

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Implement a crop rotation which allows a portion of grain crops to be left in fields unharvested to provide food and cover for wildlife during winter months.

Criteria

- Crops must be grown in a planned sequence as outlined in plan. The crop rotation shall include a minimum of three different crops. For purposes of these criteria a cover crop is considered a different crop.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- Select the crops and crop management activities that provide food for the targeted wildlife species using an approved habitat evaluation procedure.



CONSERVATION STEWARDSHIP PROGRAM

- Leave a minimum $\frac{1}{2}$ acre of unharvested, standing grain crops for each 40 acres of cropland. Unharvested plots shall be located in a single location on the 40 acre unit and additional plots shall be located on different 40 acres. *This enhancement is to be planned, contracted, and implemented on an entire field, not just the unharvested acres.*
- Locate the unharvested plots adjacent to permanent cover such as brushy fence rows, field borders, forest land, or wetlands (this does not include newly established vegetation).
- Leave unharvested crops standing over winter until it is time to prepare the soil for planting the next crop.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

- o Prior to implementation, develop a map showing planned location(s), crop type(s), and acreage of crops to be left unharvested.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria. During implementation, take photos of all unharvested plots. Photos must indicate field location and date.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.
- o After implementation, make map showing implemented location(s), crop type(s), and acreage of crops that were left unharvested each year available for review by NRCS to verify implementation of the enhancement. After implementation, make photos of unharvested plots available for review by NRCS to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- o As needed, provide technical assistance in selecting crops for food according to the approved habitat evaluation procedure.
- o As needed, provide additional assistance to the participant as requested.
- o During implementation, evaluate planned changes crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- o After implementation, review map showing implemented location(s), crop type(s), and acreage of crops that were left unharvested each year to verify implementation of the enhancement.
- o After implementation, review photos of unharvested plots to verify implementation of the enhancement.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328137Z

Leave standing grain crops unharvested to benefit wildlife cover and shelter

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Implement a crop rotation which allows a portion of grain crops to be left in fields unharvested to provide food and cover for wildlife during winter months.

Criteria

- Crops shall be grown in a planned sequence as outlined in plan. The crop rotation shall include a minimum of three different crops. For purposes of these criteria a cover crop is considered a different crop.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- Select the crops and crop management activities that provide cover and shelter for the targeted wildlife species using an approved habitat evaluation procedure.



CONSERVATION STEWARDSHIP PROGRAM

- Leave a minimum $\frac{1}{2}$ acre of unharvested, standing grain crops for each 40 acres of cropland. Unharvested plots shall be located in a single location on the 40 acre unit and additional plots shall be located on different 40 acres. *This enhancement is to be planned, contracted, and implemented on an entire field, not just the unharvested acres.*
- Locate the unharvested plots adjacent to permanent cover such as brushy fencerows, field borders, forest land, or wetlands (this does not include newly established vegetation).
- Leave unharvested crops standing over winter until it is time to prepare the soil for planting the next crop.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

- o Prior to implementation, develop a map showing planned location(s), crop type(s), and acreage of crops to be left unharvested.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria. During implementation, take photos of all unharvested plots. Photos must indicate field location and date.



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- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.
- o After implementation, make map showing implemented location(s), crop type(s), and acreage of crops that were left unharvested each year available for review by NRCS to verify implementation of the enhancement. After implementation, make photos of unharvested plots available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement. As needed, provide technical assistance in selecting crops for cover and shelter according to the approved habitat evaluation procedure.
- o As needed, provide additional assistance to the participant as requested.
- o During implementation, evaluate planned changes crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria. After implementation, review map showing implemented location(s), crop type(s), and acreage of crops that were left unharvested each year to verify implementation of the enhancement.
- o After implementation, review photos of unharvested plots to verify implementation of the enhancement.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



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CONSERVATION ENHANCEMENT ACTIVITY

E329101Z

No till to reduce water erosion

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish no till system to reduce sheet and rill erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.

Criteria

- Residue shall not be burned.
- All residues shall be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Field(s) must have a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation (average annual soil loss).



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- No full-width tillage may be performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.
- The Soil Tillage Intensity Rating value must include all field operations that are performed during the crop interval between harvest or termination of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). Each crop must have a Soil Tillage Intensity Rating value of no greater than 10.
- Use the current approved water and/or wind erosion prediction technology to determine the:
 - o amount of randomly distributed surface residue needed;
 - o time of year the residue needs to be present in the field, and
 - o amount of surface soil disturbance allowed to reduce erosion to the desired level.
- Calculations must account for the effects of other practices in the management system.



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Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned. During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- o During implementation, no full-width tillage may be performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.



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- After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, use information provided from the participant to calculate the soil loss and the Soil Tillage Intensity Rating values using current NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating value of no greater than 10 for each crop in the planned rotation.

"T" = _____ t/ac/year Soil erosion = _____ t/ac/year STIR values = _____

- During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria. After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil loss and the Soil Tillage Intensity Rating values to document that the applied rotation met the enhancement criteria.

Soil erosion = _____ t/ac/year and STIR values = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E329106Z

No till system to increase soil health and soil organic matter content

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a no till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.

Criteria

- All residues must be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Residue must not be burned, grazed, or harvested.
- No full-width tillage is performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation



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regardless of the depth of the tillage operation. The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest or termination of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop STIR value shall be no greater than 20.

- Evaluation of the cropping system (management) using the current approved soil conditioning index (SCI) procedure results in zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)



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Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned, grazed, or harvested.
- o During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- o During implementation, no full-width tillage may be performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied crop rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use information provided from the participant to calculate the Soil Tillage Intensity Rating (STIR) values using NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have a Soil Tillage Intensity Rating value of no greater than 20 for each crop in the planned rotation.



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STIR values for each crop = _____

- o Prior to implementation, use information provided from the participant and the approved soil conditioning index (SCI) procedure to verify the SCI is zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation.

SCI value = _____ and OM subfactor value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria. After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate the Soil Tillage Intensity Rating values to document that the applied rotation met the enhancement criteria.

STIR values for each crop = _____

- o After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil conditioning index (SCI) and Organic Matter (OM) subfactor values to document that the applied rotation met the enhancement criteria.

SCI value = _____ and OM subfactor value = _____



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



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CONSERVATION ENHANCEMENT ACTIVITY

E329114Z

No till to increase plant-available moisture: irrigation water

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Insufficient Water

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a no till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

Criteria

- Residue shall not be burned.
- All residues shall be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- No full-width tillage is performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation. The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest or termination of the previous cash crop and harvest or termination



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of the current cash crop (includes fallow periods). The crop STIR value shall be no greater than 20.

- Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.



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- o During implementation, no residue will be burned. During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- o During implementation, no full-width tillage may be performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.
- o During implementation, maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied crop rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use information provided from the participant to calculate the Soil Tillage Intensity Rating values and estimated surface residue cover using the NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have a Soil Tillage Intensity Rating value of no greater than 20 for each crop in the planned rotation, and the estimated surface residue cover.

STIR values for each crop in the rotation = _____

Estimated surface residue cover for each crop in the rotation = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from



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the participant to the Soil Tillage Intensity Rating value, and estimated surface residue cover to document that the applied rotation met the enhancement criteria.

STIR values for each crop in the rotation = _____

Estimated surface residue cover for each crop in the rotation = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E329114Z - No till to increase plant available
moisture: irrigation water

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CONSERVATION ENHANCEMENT ACTIVITY

E329115Z

No till to increase plant-available moisture: moisture management

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Insufficient Water

PRACTICE LIFE SPAN: 1 Year

Enhancement Description

Establish a no till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

Criteria

- Residue shall not be burned.
- All residues shall be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- No full-width tillage is performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation. The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval



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between harvest or termination of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop STIR value shall be no greater than 20.

- Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)



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- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned. During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- o During implementation, no full-width tillage may be performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.
- o During implementation, maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use information provided from the participant to calculate the Soil Tillage Intensity Rating values and estimated surface residue cover using NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have a Soil Tillage Intensity Rating value of no greater than 20 for each crop in the planned rotation, and the estimated surface residue cover.

STIR values for each crop in the rotation = _____

Estimated surface residue cover for each crop in the rotation = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from



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the participant to the Soil Tillage Intensity Rating value, and estimated surface residue cover to document that the applied rotation met the enhancement criteria.

STIR values for each crop in the rotation = _____

Estimated surface residue cover for each crop in the rotation = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E329128Z

No till to reduce tillage induced particulate matter

Conservation Practice 329: Residue and Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Air Quality Impacts

PRACTICE LIFE SPAN: 1 Year

Enhancement Description

Establish no till system to reduce tillage induced particulate matter. Field(s) must have a soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to document soil loss and STIR calculations.

Criteria

- Residue shall not be burned.
- All residues shall be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Field(s) must have an average annual soil loss at or below the soil tolerance (T) level for the crop rotation.
- No full-width tillage is performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation. The Soil Tillage Intensity Rating (STIR)



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value shall include all field operations that are performed during the crop interval between harvest or termination of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). Each crop must have a STIR value of no greater than 10.

- Use the current approved water and/or wind erosion prediction technology to determine the:
 - amount of randomly distributed surface residue needed;
 - time of year the residue needs to be present in the field, and
 - amount of surface soil disturbance allowed to reduce erosion to the desired level.
- Calculations shall account for the effects of other practices in the management system.



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Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue shall be burned. During implementation, all residues shall be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- o During implementation, no full-width tillage may be performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.



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- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, verify that the field to be establish in no-till has a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 10 for each crop in the planned rotation.

"T" = _____t/ac/year Soil erosion = _____t/ac/year STIR values = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil loss and the Soil Tillage Intensity Rating values to document that the applied rotation met the enhancement criteria.

Soil erosion = _____t/ac/year and STIR values = _____



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E329144Z

No till to reduce energy

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Inefficient Energy Use

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a no till system which reduces total energy consumption associated with field operations by at least 25% compared to current tillage system (benchmark). Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations and energy consumption.

Criteria

- Residue shall not be burned.
- All residues must be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- No full-width tillage is performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.



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- The Soil Tillage Intensity Rating (STIR) value must include all field operations that are performed during the crop interval between harvest or termination of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). Each crop must have a STIR value no greater than 20.
- Reduce the total energy consumption associated with field operations by at least 25% compared to the current benchmark tillage system. Use the current NRCS wind and water erosion prediction technologies for determining energy use to document energy use reductions.



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Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current (benchmark) and planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Current (Benchmark) Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Current (Benchmark) Field Operation	Timing of Field Operation (month/year)

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)



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- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned.

Field	Crop	Planned Field Operation	Timing of Field Operation (month/year)

- o During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- o During implementation, no full-width tillage may be performed from the time of harvest or termination of one cash crop to the time of harvest or termination of the next cash crop in the rotation regardless of the depth of the tillage operation.
- o During implementation, reduce the total energy consumption associated with field operations by at least 25 percent compared to the current benchmark tillage system.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use information provided from the participant to calculate the Soil Tillage Intensity Rating values and energy consumption for both the current system and the planned system using the approved NRCS wind and water erosion prediction technologies. Verify the Soil Tillage Intensity Rating value is no greater than 20 for each crop in the planned rotation and total energy consumption is reduced by at least 25 percent.



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Current STIR values = _____ and Energy Consumption = _____

Planned STIR values = _____ and Energy Consumption = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if changes were made to the planned crops, crop rotation, or field operations, use information provided from the participant to calculate the Soil Tillage Intensity Rating values and total energy consumption to document that the applied rotation met the enhancement criteria. Use the current erosion prediction technology to make the necessary calculations. Maintain a copy for documentation.

Applied STIR values = _____ and Energy Consumption = _____

- o *After implementation, complete a 329 Residue and Tillage Management No Till Implementation Requirements form for documentation of this activity on each field.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E338137Z2

Short-interval burn

Conservation Practice 338: Prescribed Burning

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Increase the frequency of prescribed burning to help restore ecological conditions in forests and woodlands. Several years of intense burning in certain forest and woodland conditions can regenerate desirable tree species, improve the condition of fire-adapted plants and native herbaceous vegetation, create wildlife habitat (snags and den/cavity trees), limit encroachment of competing vegetation including non-native species, and reduce the future risk of damage from intense, severe wildfires.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Prescribed Burning (Code 338) as listed below, and additional criteria as required by the NRCS State Office.
- Apply to sites where prescribed burning has previously been implemented at longer intervals (10-20 years), and where burn frequency must be increased to achieve the objectives listed in the enhancement description.
- The prescribed burning frequency will be reduced from the previous regimen to an interval of no more than 3 years between burns.



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- Assess the existing fuel load using appropriate tools and methods for the geographic area.
- Assess the need for pre-treatment of vegetation and fuels, and for application of complementary NRCS Conservation Practice Standards such as Fuel Break (Code 383), Firebreak (Code 394), and Woody Residue Treatment (Code 384).
- If invasive plants are present, use methods and timing that will prevent or control their spread.
- A written plan must be developed and all necessary approvals secured prior to conducting a prescribed burn. The plan will include the following components at a minimum:
 - The objectives of the burn and the expected post-burn conditions.
 - Maps, images and/or descriptions of the proposed burn area and any associated or adjacent smoke sensitive areas.
 - Inventory of available fuels.
 - Required weather and fuel conditions under which the burn will be conducted.
 - Firing sequence and methods.
 - List of equipment and personnel needed and job assignments.
 - Any pre-burn preparation needed to safely and effectively conduct the burn
 - List of appropriate authorities, agencies, departments, individuals, and facilities to be contacted and necessary signatures of approval.
 - Checklist for a post-burn evaluation.



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- **Burning criteria:**

- o Follow all components of the burn plan.
- o A current fire weather forecast is required prior to conducting a prescribed burn. Collect weather parameters and other data that affect fire behavior for the day of the burn and monitor the appropriate weather parameters during the burn. Weather conditions outside those prescribed in the written plan will result in postponement or cessation of the burn.

Documentation and Implementation Requirements:

Participant will:

- o Prior to implementation, determine and document the sites with at least 1 application of prescribed burning with intervals of greater than 3 years (commonly 10-20 years), and where burn frequency must be increased to achieve the objectives listed in the enhancement description. (NRCS will provide technical assistance, as needed)
- o Prior to implementation, assess the existing fuel load using appropriate tools and methods for the geographic area. Determine the need for pre-treatment of the vegetation and fuels to facilitate a desired fire intensity to achieve the enhancement objectives. Apply as needed, complimentary conservation practices such as NRCS Conservation Practice Standard Firebreak (Code 394) and Woody Residue Treatment (Code 384) to achieve appropriate conditions. (NRCS will provide technical assistance, as needed)
- o *Prior to implementation, provide to NRCS a current or updated Forest Management Plan that includes activities required to implement the enhancement.*
- o *Prior to implementation, use appropriate Ecological Site Description to determine native community for restoration per the Restoration and Management of Rare or Declining Habitats (643) standard.*
- o Prior to implementation, acquire a written burn plan for the enrolled land use acres that meets the enhancement criteria and any additional state NRCS requirements. Provide to NRCS for approval.
- o Prior to implementation of a prescribed burn, acquire all necessary approvals and permits (local, state, federal as applicable).
- o During implementation, and prior to ignition of each prescribed burn, acquire a current fire weather



CONSERVATION STEWARDSHIP PROGRAM

forecast and ensure all weather conditions are within those prescribed in the written burn plan. If conditions are not within prescription, postpone burn.

- o During implementation, and prior to ignition of any prescribed burn, notify NRCS to confirm NRCS verification for any planned changes will meet NRCS or State required enhancement criteria.
- o During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)
- o After implementation of each prescribed burn, conduct a post-burn evaluation as required within the burn plan and provide to NRCS.

NRCS will:

- o Prior to Implementation and as needed, provide technical assistance in determining sites for enhancement implementation that meet specified criteria, *including determining Ecological Site and historic burn interval*.
- o Prior to implementation and as needed, provide explanation and technical assistance to the following NRCS Conservation Practice Standards as they relate to implementing this enhancement:
 - o Prescribed Burning (Code 338)
 - o Firebreak (Code 394)
 - o Woody Residue Treatment (Code 384)
 - o CPS's for planning the use of additional erosion control, as needed for the site.
- o Prior to implementation, review and certify the prescribed burn plan meets the enhancement criteria and any additional state NRCS requirements.
- o During Implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation of each prescribed burn, review the post burn evaluation provided by the participant. Discuss any encountered issues, and as needed, provide assistance for changes in planning and procedure for the remaining prescribed burns.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340101Z

Cover crop to reduce water erosion

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Cover crop added to current crop rotation to reduce soil erosion from water to below soil tolerance (T) level. Cover crops grown during critical erosion period(s). Species are selected that will have physical characteristics to provide adequate erosion protection.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (**REFER TO STATE SPECIFIC LISTS**). Determine method and timing of termination to meet grower's objective and current NRCS Cover Crop Termination Guidelines.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.



CONSERVATION STEWARDSHIP PROGRAM

- Cover crops may be established between successive production crops, or companion planted or relay-planted into production crops. Select species and planting dates that will not compete with production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest or graze cover crop.
- If specific rhizobium bacteria for selected legumes are not present in the soil, treat seed with appropriate inoculum at time of planting.
- Time cover crop establishment in conjunction with other practices to adequately protect soil during critical erosion period(s).
- Select cover crops that will have the physical characteristics necessary to provide adequate erosion protection.
- Use NRCS erosion prediction technology to determine amount of surface and/or canopy cover needed from cover crop to achieve the erosion objective (average annual soil loss below T).
- Crops planted following the cover crop must be no-tilled.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, work with NRCS technical staff to plan a cover crop seeding according to the criteria in the Missouri NRCS Conservation Practice Standard Cover Crop (340). This plan will include seedbed preparation, species selection, seeding rates, seeding methods, seeding dates, seeding depth, fertilizer and weed control (as needed), termination dates, and termination method.
- o Prior to implementation, provide NRCS with the current planned crop rotation, cover crop information, and field operation(s) used for each crop.

Current Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Current Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)



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CONSERVATION STEWARDSHIP PROGRAM

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Planned Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)

Cover Crop Mix and Seeding Rate according to Cover Crop (340) practice standard.

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)



CONSERVATION STEWARDSHIP PROGRAM

Establishment and Management Criteria:

Task	Provide information and details
Seedbed Preparation	
Seeding Date	
Seeding Depth	
Seeding Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	

- o Prior to implementation, read and follow the current [NRCS Cover Crop Termination Guidelines](#) as listed in the documents in the Field Office Technical Guide (FOTG), Section IV, Conservation Practices, Cover Crop (340), NRCS Cover Crop Termination Guidelines.
- o During implementation, cover crops must not be burned, grazed or harvested.
- o During implementation, the crop following the cover crop must be no till seeded.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify that the planned system meets the enhancement criteria.
- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document that the Cover Crop (340) practice was successfully applied for the contract period, and provide all documentation to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that meet the criteria of the enhancement. *Select species that are listed as Very Good to Excellent for erosion protection. If a species mix is planned, 80 percent or more must be species rated Very Good to Excellent for erosion control.*
- o As needed, provide additional assistance to the participant as requested.



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- o Prior to implementation, use information provided from the participant to calculate the *sheet and rill erosion caused by water for each field* using current NRCS water erosion prediction technologies.
- o During implementation, evaluate any planned changes to cover crop mix, timing in crop rotation, management, or field operations to verify that the new system meets the enhancement criteria *and the Missouri NRCS Conservation Practice Standard Cover Crop (340)*.
- o After implementation, evaluate the applied cover crop in the crop rotation or management system using information provided from the participant. If there is any variation to the planned evaluation, calculate erosion values to document that the applied rotation met the enhancement criteria.

Field Number	Benchmark Soil Loss	Planned Soil Loss	Applied Soil Loss

- o After implementation, complete the MO-JS-Agrom-340 form to document implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.



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CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340106Z1

Intensive cover cropping to increase soil health and soil organic matter content

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Implementation of cover crop mix to provide soil coverage during ALL non-crop production periods in an annual crop rotation. Cover crop shall not be harvested or burned. Planned crop rotation including cover crops and associated management activities must achieve a soil conditioning index (SCI) of zero or higher. The current NRCS wind and water erosion prediction technologies must be used to document SCI calculations.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (REFER TO STATE SPECIFIC LISTS).
- Determine the method and timing of termination to meet the grower's objective and the current NRCS Cover Crop Termination Guidelines.



CONSERVATION STEWARDSHIP PROGRAM

- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion planted or relay-planted into production crops. Select species and planting dates that will not compete with the production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest the cover crop.
- If the specific *Rhizobium sp.* bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.
- Cover crop must provide soil coverage during all non-crop production periods to the maximum extent possible considering the cropping system, climate, and soils in the annual crop rotation. (STATES SHALL PREPARE GUIDANCE FOR THEIR LOCAL CLIMATES AND CROPPING SYSTEMS).
- Minimum 3 species mix will be selected on the basis of producing higher volumes of organic material and root mass to maintain or increase soil organic matter.
- Planned crop rotation including cover crops, biomass produced, and associated management activities must achieve a management soil conditioning index (SCI) of zero or higher and results in a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current and planned crop rotation and field operation(s) used for each crop.

Current Management Rotation

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Current Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)



CONSERVATION STEWARDSHIP PROGRAM

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Planned Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o Prior to implementation, work with NRCS technical staff to plan a cover crop seeding according to the criteria in the *Missouri* NRCS Conservation Practice Standard Cover Crop (340). This plan will include seedbed preparation, species selection, seeding rates, planting methods, planting dates, planting depth, fertilizer and weed control (as needed), termination dates, and termination method.



CONSERVATION STEWARDSHIP PROGRAM

Cover Crop Mix and Seeding Rate

Species	Variety	Seed Size	Planting Depth	Seeding Rate (PLS lbs/acre)	Percent of Mixture

Establishment and Management Criteria:

Task	Provide information and details
Seedbed Preparation	
Planting Date	
Planting Depth	
Planting Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	

- o Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#) as listed in the documents in the Field Office Technical Guide (FOTG), Section IV, Conservation Practices, Cover Crop (340), NRCS Cover Crop Termination Guidelines.
- o During implementation, cover crops must not be burned or harvested.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify that the planned system meets the enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document that the Cover Crop practice was successfully applied for the contract period, and provide all documentation to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that meet the criteria of the enhancement. *Select species that are listed as Very Good to Excellent as an organic matter builder.*
- o As needed, provide additional assistance to the participant as requested.
- o Prior to implementation, verify the cover crop mix has a minimum of 3 species.
- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- o Prior to implementation, use information provided from the participant to calculate the Benchmark Soil Conditioning Index (SCI) and Organic Matter (OM) sub factor value over the life of the rotation. Cover crop must increase SCI and OM sub factor from the current/benchmark condition and the SCI value must be 0 or greater and have a positive trending OM subfactor over the life of the rotation.

Field Number	Bench mark SCI	Bench mark OM Subfactor	Planned SCI	Planned OM Subfactor	Applied SCI	Applied OM Subfactor



CONSERVATION STEWARDSHIP PROGRAM

- o During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria and the Missouri NRCS Conservation Practice Standard Cover Crop (340).
- o After implementation, evaluate the applied crop rotation or management system using information provided by the participant. If any variation to the planned evaluation, calculate SCI values and OM subfactor values to document that the applied rotation met the enhancement criteria. The current NRCS wind and water erosion prediction technologies must be used to document SCI calculations and OM subfactor values. A copy of the calculations will be maintained as documentation for each field.
- o After implementation, complete the MO-JS-Agron-340 form to document full implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name: _____ Contract Number: _____

Total Acres Applied: _____ Fiscal Year Completed: _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340106Z2

Use of multi-species cover crop to improve soil health and increase soil organic matter

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Implement a multi-species cover crop to add diversity and increase biomass production to improve soil health and increase soil organic matter. Cover crop mix must include a minimum of 4 different species. The cover crop mix will increase diversity of the crop rotation by including crop types currently missing, e.g. Cool Season Grass (CSG), Cool Season Broadleaves (CSB), Warm Season Grasses (WSG), Warm Season Broadleaves (WSB).

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (**REFER TO STATE SPECIFIC LISTS**).



CONSERVATION STEWARDSHIP PROGRAM

- Determine the method and timing of termination to meet the grower's objective and the current NRCS Cover Crop Termination Guidelines.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion planted or relay-planted into production crops. Select species and planting dates that will not compete with the production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest the cover crop.
- If the specific rhizobium bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.
- Cover crop must provide soil coverage during all non-crop production periods to the maximum extent possible considering the cropping system, climate, and soils in the annual crop rotation. **(STATES SHALL PREPARE GUIDANCE FOR THEIR LOCAL CLIMATES AND CROPPING SYSTEMS)**
- The crop rotation, to include the cover crop species, shall consist of the four crop types: Cool Season Grass (CSG), Cool Season Broadleaves (CSB), Warm Season Grasses (WSG), and Warm Season Broadleaves (WSB). The multi-species cover crop mix must include at least 4 different species, of those 4 species at least two of them must be from one or more of the crop types needed to fill in the missing crop types in the crop rotation. The cover crop mix will increase diversity of the crop rotation.



CONSERVATION STEWARDSHIP PROGRAM

- Planned crop rotation including cover crops, biomass produced, and associated management activities must achieve a management soil conditioning index (SCI) of zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation.

Additional criteria when livestock are included in the system:

Cover Crops may only be grazed in a manner that retains or enhances the purpose of increasing soil organic matter.

- Grazing plan must be developed to document livestock management. Plan must include at a minimum a forage estimate and livestock inventory for all fields implementing this enhancement that will be grazed. For soil health benefits, utilization by livestock must be less than 50% of available cover crop forage.
- Before cover crops are grazed, they must have produced enough biomass to allow for grazing while maintaining soil health benefits. Cover crops planted in late fall will not typically be well enough established, however if **stands are** adequate cover crops may be grazed in the spring prior to termination.
- Different cover crop species have varying tolerances to grazing; this should be taken into consideration when developing cover crop seeding specifications.
- Grazing shall not occur during wet soil conditions.
- Some pesticides have restrictions on grazing following application (up to 18 months). Refer to pesticide labels.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current and planned crop rotation and field operation(s) used for each crop.

Current Management Rotation

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Current Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)



CONSERVATION STEWARDSHIP PROGRAM

Planned Management Rotation Including Cover Crop

Field	Planned Crops and Cover Crops (in sequence)	Planting Date	Harvest or Termination Date

Planned Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o *Prior to implementation, work with NRCS technical staff to plan a cover crop seeding according to the criteria in the Missouri NRCS Conservation Practice Standard Cover Crop (340). This plan will include seedbed preparation, species selection, seeding rates, planting methods, planting dates, planting depth, fertilizer and weed control (as needed), termination dates, and termination method.*



CONSERVATION STEWARDSHIP PROGRAM

Cover Crop Mix (minimum of 4 species and 2 different crop types) and Seeding Rate

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)	Crop Type (CSG, CSB, WSG, WSB)

Establishment and Management Criteria:

Task	Provide information and details
Seedbed Preparation	
Planting Date	
Planting Depth	
Planting Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	
Grazing Management, as needed	

- o Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#) as listed in the documents in the Field Office Technical Guide (FOTG), Section IV, Conservation Practices, Cover Crop (340), NRCS Cover Crop Termination Guidelines.
- o Prior to implementation, if livestock are included in the system consider cover crop species tolerant to grazing.



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, if livestock are included in the system, develop a grazing plan which must document livestock management. Plan must include at a minimum a forage estimate and livestock inventory for all fields implementing this enhancement that will be grazed. For soil health benefits, utilization by livestock must be less than 50 percent of available cover crop forage.
- o During implementation, cover crops must not be burned or harvested.
- o During implementation, if livestock are included in the system maintain records of forage utilization.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify that the planned system meets the enhancement criteria.
- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document that the Cover Crop practice was successfully applied for the contract period, and provide all documentation to NRCS.
- o After implementation, if livestock are included in the system provide grazing plan and forage utilization records to NRCS for review to verify additional criteria of the enhancement were met.
- o After implementation, the current NRCS wind and water erosion prediction technologies must be used to document SCI calculations and the Organic Matter (OM) subfactor.

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that meet the criteria of the enhancement. *Select species that are listed as Very Good to Excellent as an organic matter builder.*
- o Prior to implementation, verify that the cover crop mix has a minimum of 4 species with at least two of them from one or more of the crop types needed to fill in the missing crop types in the crop rotation.
- o As needed, provide additional assistance to the participant as requested.
- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).



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- o Prior to implementation, use information provided by the participant to calculate the management Soil Conditioning Index (SCI) and Organic Matter (OM) sub factor value over the life of the rotation using current NRCS Soil Conditioning Index (SCI) procedure. Cover crop must increase SCI and OM sub factor from the current/benchmark condition and SCI value must be 0 or greater and have a positive trend in OM sub factor over the life of the rotation.
- o Prior to implementation, if livestock are included in the system verify a grazing plan has been developed.
- o During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify that the new system meets the enhancement criteria.
- o After implementation, evaluate the applied crop rotation or management using information provided by the participant. If any variation to planned evaluation, calculate SCI values to document that the applied rotation met the enhancement criteria. *The current NRCS wind and water erosion prediction technologies must be used to document SCI calculations. Maintain original copies of the SCI and OM subfactor calculations to document the values in the following table.*
- o After implementation, if livestock are included in the system, review grazing plan and forage utilization records to verify that additional criteria of the enhancement were met.
- o *After implementation, complete the MO-JS-Agron-340 form to document Full implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.*



CONSERVATION STEWARDSHIP PROGRAM

Field Number	Bench Mark SCI	Bench Mark OM subfactor	Planned SCI	Planned OM subfactor	Applied SCI	Applied OM Subfactor

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E340106Z2 - Use of multi-species cover crop to improve soil health and increase soil organic matter

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340106Z3

Intensive cover cropping (orchard or vineyard floor) to increase soil health and soil organic matter content

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Implementation of cover crops to provide orchard or vineyard floor coverage throughout the year. Cover crop shall not be harvested, grazed, or burned. Planned cover crop management activities must achieve a soil conditioning index (SCI) of zero or higher and produce a positive trend in the Organic Matter (OM) sub factor over the life of the crop rotation. The current NRCS wind and water erosion prediction technologies must be used to document SCI calculations.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (**REFER TO STATE SPECIFIC LISTS**).



CONSERVATION STEWARDSHIP PROGRAM

- Determine the method and timing of termination to meet the grower's objective and the current NRCS Cover Crop Termination Guidelines.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion planted or relay-planted into production crops. Select species and planting dates that will achieve the purpose of the cover crop without negatively impacting the production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest the cover crop.
- If the specific *Rhizobium spp.* bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.
- Cover crop must provide soil coverage during all non-crop production periods to the maximum extent possible considering the cropping system, climate, and soils in the annual crop rotation. **(STATES SHALL PREPARE GUIDANCE FOR THEIR LOCAL CLIMATES AND CROPPING SYSTEMS.)** *Minimum 2 species cover crop mix* will be selected on the basis of producing higher volumes of organic material and root mass to maintain or increase soil organic matter.
- Planned crop rotation including cover crop biomass production and associated management activities must achieve a management soil conditioning index (SCI) of zero or higher and result in a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation.
- Cover crops are replanted annually.
- Grow cover crops on a minimum of 60% of the field area year annually.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with the current and planned crop rotation and field operation(s) used for each crop.

Current Management Rotation

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Current Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)



CONSERVATION STEWARDSHIP PROGRAM

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

- o Prior to implementation, work with NRCS technical staff to plan a cover crop seeding according to the criteria in the Missouri NRCS Conservation Practice Standard Cover Crop (340). This plan will include seedbed preparation, species selection, seeding rates, planting methods, planting dates, planting depth, fertilizer and weed control (as needed), termination dates, and termination method.
- o Prior to implementation, select species that are rated as Very Good to Excellent as an organic matter builder.

Cover Crop Mix and Seeding Rate – minimum 2 species cover crop mix

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)



CONSERVATION STEWARDSHIP PROGRAM

Establishment and Management Criteria:

Task	Provide information and details
Seedbed Preparation	
Planting Date	
Planting Depth	
Planting Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	

- o Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#) as listed in the documents in the *Field office Technical Guide (FOTG)*, Section IV, *Conservation Practices, Cover Crop (340)*, *NRCS Cover Crop Termination Guidelines*.
- o Prior to implementation, develop a map showing the area(s) to be planted to cover crop. The cover crop must protect at least 60 percent of the field area each year.
- o During implementation, cover crops must not be burned or harvested.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify that the planned system meets the enhancement criteria.
- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document that the Cover Crop was successfully applied for the contract period, and provide all documentation to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement. *Select species that are listed as Very Good to Excellent as an organic matter builder.*
- o As needed, provide additional assistance to the participant as requested.



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- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value and Organic Matter (OM) subfactor value over the life of the rotation. Cover crop must increase SCI and OM subfactor from the current/benchmark condition and SCI value must be zero or greater and have a positive trending OM subfactor over the life of the rotation.
- o Prior to implementation, verify the cover crop mix includes at least 2 species of cover crop. Prior to implementation, verify the development of a map showing the area(s) to be planted to cover crop.
- o Prior to implementation, verify cover crop will cover at least 60 percent of the field area each year. During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- o After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, then calculate SCI values to document that the applied rotation met the enhancement criteria.

Field Number	Benchmark SCI	Benchmark OM subfactor	Planned SCI	Planned OM subfactor	Applied SCI	Applied OM subfactor



CONSERVATION STEWARDSHIP PROGRAM

- o *After implementation, the current NRCS wind and water erosion prediction technologies must be used to document SCI calculations and OM subfactor values of the benchmark, planned and applied activity. A copy of calculations will be maintained as documentation for each field.*
- o *After implementation, complete the MO-JS-Agron-340 form to document full implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340106Z4

Use of soil health assessment to assist with development of cover crop mix to improve soil health and increase soil organic matter

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Use of a soil health assessment to evaluate impact of current conservation crop rotation in addressing soil organic matter depletion (primary assessment made in Year 1). Soil health assessment results and client's objectives will be utilized to determine a multi-species cover crop mix that will be added to the crop rotation. During Year 3 a follow up assessment will be completed to allow time for the addition of a cover crop to increase soil organic matter.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (**REFER TO STATE SPECIFIC LISTS**).



CONSERVATION STEWARDSHIP PROGRAM

- Determine the method and timing of termination to meet the grower's objective and the current NRCS Cover Crop Termination Guidelines.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion planted or relay-planted into production crops. Select species and planting dates that will not compete with the production crop yield or harvest.
- Do not burn cover crop residue. Do not harvest the cover crop.
- If the specific rhizobium bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.
- Cover crop must provide soil coverage during all non-crop production periods to the maximum extent possible considering the cropping system, climate, and soils in the annual crop rotation. **(STATES SHALL PREPARE GUIDANCE FOR THEIR LOCAL CLIMATES AND CROPPING SYSTEMS)**
- Soil health assessment will be used to evaluate impact of current conservation crop rotation in addressing soil organic matter depletion, as well as additional soil health objectives of the individual grower (primary assessment made in Year 1). During Year 3, a follow up assessment will be completed to allow time for the addition of a cover crop and other management activities to have an impact on soil health. No specific soil health Assessment type is required or recommended by NRCS, but at a minimum the assessment must account for soil organic matter. The specific assessment selected should provide the grower information based on their soil health objectives.
- Minimum 4 species cover crop mix will be selected on the basis of producing higher volumes of organic material and root mass to maintain or increase soil organic matter. The cover crop mix must be compatible with the local soil, climate, and cropping systems.



CONSERVATION STEWARDSHIP PROGRAM

- Planned crop rotation including cover crops, biomass produced, and associated management activities must achieve a management soil conditioning index (SCI) of zero or higher and results in a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation.

Additional criteria when livestock are included in the system:

Cover Crops may only be grazed in a manner that retains or enhances the purpose of increasing soil organic matter.

- Grazing plan must be developed to document livestock management. Plan must include at a minimum a forage estimate and livestock inventory for all fields implementing this enhancement that will be grazed. For soil health benefits, utilization by livestock must be less than 50% of available cover crop forage.
- Before cover crops are grazed, they must have produced enough biomass to allow for grazing while maintaining soil health benefits. Cover crops planted in late fall will not typically be well enough established, however if stands are adequate cover crops may be grazed in the spring prior to termination.
- Different cover crop species have varying tolerances to grazing; this should be taken into consideration when developing cover crop seeding specifications.
- Grazing shall not occur during wet soil conditions.
- Some pesticides have restrictions on grazing following application (up to 18 months). Refer to pesticide labels.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current and planned crop rotation and field operation(s) used for each crop.

Current Management Rotation

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Current Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)



CONSERVATION STEWARDSHIP PROGRAM

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

- o *Prior to implementation, work with NRCS technical staff to plan a cover crop seeding according to the criteria in the Missouri NRCS Conservation Practice Standard Cover Crop (340). This plan will include seedbed preparation, species selection, seeding rates, planting methods, planting dates, planting depth, fertilizer and weed control (as needed), termination dates, and termination method.*

Cover Crop Mix (*minimum of 4 species*) and Seeding Rate

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)



CONSERVATION STEWARDSHIP PROGRAM

Establishment and Management Criteria:

Task	Provide information and details
Seedbed Preparation	
Planting Date	
Planting Depth	
Planting Method	
Fertilizer, as needed	
Weed Management, as needed	
Grazing Management, as needed	
Termination Date (window)	
Termination Method	

Soil Health Assessment:

Producer Objective	Year 1 Assessment Value	Year 3 Assessment Value
Soil Organic Matter (required)		

- o Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#) as listed in the documents in the Field Office Technical Guide (FOTG), Section IV, Conservation Practices, Cover Crop (340), NRCS Cover Crop Termination Guidelines.
- o Prior to implementation, if livestock are included in the system, consider cover crop species tolerant to grazing.
- o Prior to implementation, if livestock are included in the system, develop a grazing plan which must document livestock management. Plan must include at a minimum a forage estimate and livestock inventory for all fields implementing this enhancement



CONSERVATION STEWARDSHIP PROGRAM

that will be grazed. For soil health benefits, utilization by livestock must be less than 50 percent of available cover crop forage *documented with photography*.

- o During implementation, cover crops must not be burned or harvested.
- o During implementation, if livestock are included in the system, maintain records of forage utilization.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify that the planned system meets the enhancement criteria.
- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document the applied Cover Crop for the contract period and provide to NRCS.
- o After implementation, if livestock are included in the system, provide grazing plan and forage utilization records to NRCS for review to verify that additional criteria of the enhancement were met.
- o After implementation, provide soil health assessment results and any documentation of changes made to NRCS for review to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- o As needed, provide additional assistance to the participant as requested.
- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- o Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) and Organic Matter (OM) sub factor value over the life of the rotation using current NRCS Soil Conditioning Index (SCI) procedure. Cover crop must increase SCI and OM sub factor from the current/benchmark condition and SCI value must be 0 or greater and have a positive trend in OM sub factor over the life of the rotation. *Use the current NRCS water erosion prediction technology to calculate SCI and OM subfactor. Maintain copies of these calculations.*



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- o Prior to implementation, if livestock are included in the system, verify a grazing plan has been developed.
- o During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.

Field Number	Bench Mark SCI	Bench Mark OM subfactor	Planned SCI	Planned OM subfactor	Applied SCI	Applied OM subfactor

- o After implementation, evaluate the applied crop rotation or management using information provided by the participant, if there is any variation to the planned evaluation, calculate SCI and OM subfactor values to document that the applied rotation meets the enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

- o After implementation, if livestock are included in the system review grazing plan and forage utilization records to verify additional criteria of the enhancement were met.
- o After implementation, review soil health assessment results and any documentation of changes made to verify implementation of the enhancement.
- o *After implementation, complete the MO-IS-Agron – 340 form to document implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E340106Z4 - Use of soil health assessment to assist with development of cover crop mix to improve soil health and increase soil organic matter

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340107Z

Cover crop to minimize soil compaction

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a cover crop mix that includes plants with both fibrous root and deep rooted systems. Fibrous to treat and prevent both near surface (0-4") and deep (>4") soil compaction and deep rooted to break up deep compacted soils. Cover crop shall not be harvested, grazed, or burned.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (**REFER TO STATE SPECIFIC LISTS**).
- Determine method and timing of cover crop termination to meet grower's objective and current NRCS Cover Crop Termination Guidelines.
- Select species that are compatible with other components of the cropping system.



CONSERVATION STEWARDSHIP PROGRAM

- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, companion planted or relay-planted into production crops. Select species and planting dates that will not compete with production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest or graze cover crop.
- If specific rhizobium bacteria for selected legumes are not present in the soil, treat seed with appropriate inoculum at time of planting.
- Select a mix of cover crop species that includes plants with both fibrous root and deep rooted systems. Fibrous rooted cover crop species are essential to treat and prevent both near surface (0-4") and deep (>4") soil compaction and deep rooted species to break up deep compacted soils.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant Will:

- o Prior to implementation, provide NRCS with the planned crop rotation and field operation(s) used for each crop.

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Planned Field Operations for each crop

Field	Crop	Field Operation	Timing of Field Operation (month/year)



CONSERVATION STEWARDSHIP PROGRAM

Cover Crop Mix (*minimum of 2 species, one each fibrous and deep rooted*) and Seeding Rate

Deep rooted crop types must have documented ability to alleviate compaction. *Available species for this enhancement are annual ryegrass, cereal rye, triticale, forage sorghum, sorghum-sudangrass, and oilseed radish.*

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)	Root Type (fibrous or deep)

Establishment and Management Criteria:

Task	Provide information and details
Seedbed Preparation	
Planting Date	
Planting Depth	
Planting Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	

- o Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#) as listed in the documents in the Field Office Technical Guide (FOTG), Section IV, Conservation Practices, Cover Crop (340), NRCS Cover Crop Termination Guidelines.



CONSERVATION STEWARDSHIP PROGRAM

- o During implementation, cover crops must not be burned, grazed, or harvested.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document the applied Cover Crop for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that will meet the criteria of the enhancement.
- o As needed, provide additional assistance to the participant as requested.
- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- o Prior to implementation, verify that the cover crop mix includes both fibrous root and deep rooted systems.
- o During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify that the new system meets the enhancement criteria.
- o After implementation, evaluate the applied crop rotation or management using information provided by the participant. If any variation to the planned system, document that the applied rotation met the enhancement criteria.
- o *After implementation, complete the MO-JS-Agron – 340 form to document implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.*



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name: _____ Contract Number: _____

Total Acres Applied: _____ Fiscal Year Completed: _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340118Z

Cover crop to reduce water quality degradation by utilizing excess soil nutrients – surface water

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a cover crop mix to take up excess soil nutrients. Select cover crop species for their ability to effectively utilize nutrients. Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake. Cover crop shall not be harvested, grazed, or burned.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions **(REFER TO STATE SPECIFIC LISTS)**.
- Determine method and timing of cover crop termination to meet grower's objective and current NRCS Cover Crop Termination Guidelines. *Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake.*



CONSERVATION STEWARDSHIP PROGRAM

- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion planted or relay-planted into production crops. Select species and planting dates that will not compete with production crop yield or harvest.
- Do not remove cover crop biomass or burn cover crop residue.
- Do not harvest or graze cover crop.
- If the specific *Rhizobium spp.* bacteria for selected legumes are not present in the soil, treat seed with appropriate inoculum at time of planting.
- Select cover crop species for their ability to efficiently scavenge excess soil nutrients. Nutrient uptake only occurs when the cover crop is actively growing. Once the cover crop is terminated and begins to degrade the plant available nutrients that had been up taken by the cover crop will be released back to the soil. Therefore, it is imperative that the following production crop be planted as soon as possible after cover crop termination to maximize nutrient cycling and minimize offsite transport of nutrients.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current and planned crop rotation and field operation(s) used for each crop.



CONSERVATION STEWARDSHIP PROGRAM

Document excess nutrients identified in tissue tests or applied manures in the fall:

Field	Tissue Test Date	Rate of Applied Nutrient	Soil Test Nutrient Result (ppm or lbs/ac)

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Cover Crop Mix and Seeding Rate

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)



CONSERVATION STEWARDSHIP PROGRAM

Establishment and Management Considerations:

Establish cover crops as soon as practical prior to or after harvest of the production crop. *Fall cover crop establishment and overwinter survival is required of the selected cover crop species.*

Task	Provide information and details
Seedbed Preparation	
Planting Date	
Planting Depth	
Planting Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	

- o Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#) as listed in the documents in the Field Office Technical Guide (FOTG), Section IV, Conservation Practices, Cover Crop (340), NRCS Cover Crop Termination Guidelines.
- o Prior to implementation, determine the species that will be used based on a Very Good or Excellent rating for scavenging nitrogen from Appendix 1 of the Missouri NRCS Conservation Practice Standard Cover Crop (340).
- o During implementation, cover crops must not be grazed, burned, harvested, or biomass removed.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify that the planned system meets the enhancement criteria.
- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document the applied Cover Crop for the contract period and provide information to NRCS.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- o As needed, provide additional assistance to the participant as requested.
- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- o During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify that the new system meets the enhancement criteria.
- o After implementation, evaluate the applied crop rotation or management using information provided from the participant. If *there was* any variation to *the* planned evaluation, document that the applied rotation met the enhancement criteria.
- o *After implementation, complete the MO-JS-Agron – 340 form to document implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E340118Z - Cover crop to reduce water
quality degradation by utilizing excess soil
nutrients – surface water

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340119Z

Cover crop to reduce water quality degradation by utilizing excess soil nutrients-ground water

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a cover crop mix to take up excess soil nutrients. Select cover crop species for their ability to effectively utilize nutrients. Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake. Cover crop shall not be harvested, grazed, or burned.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions **(REFER TO STATE SPECIFIC LISTS)**.
- Determine method and timing of cover crop termination to meet grower's objective and current NRCS Cover Crop Termination Guidelines. *Terminate the cover crop as late as practical to maximize plant biomass production and nutrient uptake.*
- Select species that are compatible with other components of the cropping system.



CONSERVATION STEWARDSHIP PROGRAM

- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion planted or relay-planted into production crops. Select species and planting dates that will not compete with production crop yield or harvest.
- Do not remove cover crop biomass or burn cover crop residue.
- Do not harvest or graze cover crop.
- If the specific *Rhizobium spp.* bacteria for selected legumes are not present in the soil, treat seed with appropriate inoculum at time of planting.
- Select cover crop species for their ability to efficiently scavenge excess soil nutrients. Nutrient uptake only occurs when the cover crop is actively growing. Once the cover crop is terminated and begins to degrade the plant available nutrients that had been up taken by the cover crop will be released back to the soil. Therefore, it is imperative that the following production crop be planted as soon as possible after cover crop termination to maximize nutrient cycling and minimize offsite transport of nutrients.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current and planned crop rotation and field operation(s) used for each crop.

Document excess nutrients identified in tissue tests or in fall applied manure

Field	Tissue Test Date	Rate of Applied Nutrients	Soil Test Nutrient Result (ppm or lbs/ac)

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Cover Crop Mix and Seeding Rate

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)



CONSERVATION STEWARDSHIP PROGRAM

Establishment and Management Considerations:

Establish cover crops as soon as practical prior to or after harvest of the production crop.

Task	Provide information and details
Seedbed Preparation	
Planting Date	
Planting Depth	
Planting Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	

- o Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#) as listed in the documents in the Field Office Technical Guide (FOTG), Section IV, Conservation Practices, Cover Crop (340), NRCS Cover Crop Termination Guidelines.
- o During implementation, cover crops must not be grazed, burned, harvested or biomass removed.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify that the planned system meets the enhancement criteria.
- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document the applied Cover Crop for the contract period and provide information to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that will meet the criteria of the enhancement. *Use cover crop species rated Very Good to Excellent as a nutrient scavenger listed in Appendix 1 of the Missouri NRCS Conservation Practice Standard Cover Crop (340). Species selected shall be established*



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in the fall after crop harvest, overwinter, and grow as long as possible into the spring before termination.

- o As needed, provide additional assistance to the participant as requested.
- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- o During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- o After implementation, evaluate the applied crop rotation or management using information provided by the participant. If *there was* any variation to planned evaluation, document that the applied rotation met the enhancement criteria.
- o *After implementation, complete the MO-JS-Agron – 340 form to document implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E340134Z

Cover crops to suppress excessive weed pressures and break pest cycles

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a cover crop mix to suppress excessive weed pressures and break pest cycles. Select cover crop species for their life cycles, growth habits, and other biological, chemical and/or physical characteristics. Select cover crop species that do not harbor pests or diseases of subsequent crops in the rotation. Cover crop shall not be harvested, grazed, or burned.

Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions **(REFER TO STATE SPECIFIC LISTS)**.
- Determine method and timing of cover crop termination to meet grower's objective and current NRCS Cover Crop Termination Guidelines.



CONSERVATION STEWARDSHIP PROGRAM

- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion planted or relay-planted into production crops. Select species and planting dates that will not compete with production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest or graze cover crop.
- If specific rhizobium bacteria for selected legumes are not present in the soil, treat seed with appropriate inoculum at time of planting.
- Select cover crop species that do not harbor pests or diseases of subsequent crops in the rotation. Select cover crop species for their life cycles, growth habits, and other biological, chemical and or physical characteristics to provide one or more of the following:
 - o To suppress weeds, or compete with weeds.
 - o Break pest life cycles or suppress of plant pests or pathogens.
 - o Provide food or habitat for natural enemies of pests.
 - o Release compounds such as glucosinolates that suppress soil borne pathogens or pests.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current and planned crop rotation and field operation(s) used for each crop.

Planned Management Rotation Including Cover Crop

Field	Planned Crops/Cover Crop (in sequence)	Planting Date	Harvest/Termination Date

Cover Crop Mix and Seeding Rate

Species	Variety	Seed Size	Typical Seeding Depth	Seeding Rate (PLS lbs/acre)	Percent of Mix (%)



CONSERVATION STEWARDSHIP PROGRAM

Establishment and Management Considerations:

Task	Provide information and details
Seedbed Preparation	
Seeding Date	
Seeding Depth	
Seeding Method	
Fertilizer, as needed	
Weed Management, as needed	
Termination Date (window)	
Termination Method	

- o Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- o During implementation, cover crops must not be grazed, burned, harvested or biomass removed.
- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- o After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document the applied Cover Crop for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement. *Select species that are rated as Very Good too Excellent for weed suppression. A seeding mixture shall be composed of 80 percent species that are listed as Very Good to Excellent for weed suppression. Refer to the Missouri Field Office Technical Guide (FOTG) for information on species selection and management. Navigate to Appendix 1 of the Missouri Cover Crop (340) conservation practice standard found in Section IV of FOTG.*



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- o As needed, provide additional assistance to the participant as requested.
- o Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- o During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- o After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, document that the applied rotation met the enhancement criteria.
- o *After implementation, complete the MO-IS-Agron – 340 form to document implementation of this activity on all fields according to the criteria of the Cover Crop (340) standard.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E345101Z

Reduced Tillage to Reduce Water Erosion

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Establish a reduced tillage system to reduce sheet and rill erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to calculate soil loss and STIR.

Criteria:

- Uniformly distribute residues over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Do not burn crop residues.
- The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop



CONSERVATION STEWARDSHIP PROGRAM

STIR value ratings shall be no greater than 40, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.

- Use the current approved water erosion prediction technology to determine the:
 - o Amount of randomly distributed surface residue needed.
 - o Time of year the residue needs to be present in the field.
 - o Amount of surface soil disturbance allowed to reduce erosion to the desired level of average annual soil loss.
 - o Calculations must account for the effects of other practices in the management system.
- In ridge-till systems, plan ridge height and ridge orientation to manage runoff and minimize erosion, with a maximum row grade of 4%.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned. During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- o During implementation, no primary inversion tillage implements (e.g. moldboard plow) will be used.



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- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use information provided from the participant to calculate the soil loss and the Soil Tillage Intensity Rating values using current NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating value of no greater than 40 for each crop in the planned rotation.

"T" = _____ t/ac/year Soil erosion = _____ t/ac/year STIR values = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria. After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil loss and the Soil Tillage Intensity Rating values to document that the applied rotation met the enhancement criteria.

Soil erosion = _____ t/ac/year and STIR values = _____



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E345106Z

Reduced tillage to increase soil health and soil organic matter content

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Establish a reduced till system to increase soil health and soil organic matter content. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The crop rotation must achieve a soil conditioning index (SCI) of zero or higher and produce a positive trend in the Organic Matter (OM) subfactor over the life of the crop rotation. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. Residue shall not be burned, grazed, or harvested.

Criteria:

- Uniformly distribute residues over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Do not burn residues.



CONSERVATION STEWARDSHIP PROGRAM

- Field must have an annual soil loss at or below the soil tolerance (T) level for the crop rotation.
- The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop STIR value rating shall be no greater than 80, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.
- Evaluation of the cropping system using the current approved soil conditioning index (SCI) procedure results in zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation (management SCI value).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned.
- o During implementation, all residues will be uniformly distributed over the entire field.
Removing residue from the row area prior to or as part of the planting operation is acceptable.



CONSERVATION STEWARDSHIP PROGRAM

- o During implementation, no primary inversion tillage implements (e.g. moldboard plow) will be used.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use information provided from the participant to calculate the soil loss and the Soil Tillage Intensity Rating values using current NRCS wind and water erosion prediction technologies.
- o Verify the enrolled field(s) will have an annual soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating value of no greater than 80 for each crop in the planned rotation.

"T" = _____ t/ac/year Soil erosion = _____ t/ac/year STIR values = _____

- o Prior to implementation, use information provided from the participant and the approved soil conditioning index (SCI) procedure to verify the SCI is zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation.

SCI value = _____ and OM subfactor value = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria. After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil loss and the Soil Tillage Intensity Rating values to document that the applied rotation met the enhancement criteria.

Soil erosion = _____ t/ac/year and STIR values = _____



CONSERVATION STEWARDSHIP PROGRAM

- o After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil conditioning index (SCI) and Organic Matter (OM) subfactor values to document that the applied rotation met the enhancement criteria.

SCI value = _____ and OM subfactor value = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E345114Z

Reduced tillage to increase plant-available moisture: irrigation water

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Insufficient Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Establish a reduced till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

Criteria:

- Uniformly distribute residues over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Do not burn crop residues.
- Field must have an annual soil loss at or below the soil tolerance (T) level for the crop rotation.



CONSERVATION STEWARDSHIP PROGRAM

- The Soil Tillage Intensity Rating (STIR) value MUST include all field operations that are performed during the crop interval between harvest of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop STIR value rating shall be no greater than 80, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.
- Maintain a minimum 60 percent surface residue cover throughout the year.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned. During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable. During implementation, no primary inversion tillage implements (e.g. moldboard plow) will be used.
- o During implementation, maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.



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- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use information provided from the participant to calculate the soil loss, Soil Tillage Intensity Rating values, and estimated surface residue cover using current NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have an annual soil loss at or below the soil tolerance (T) level, a Soil Tillage Intensity Rating value of no greater than 80 for each crop in the planned rotation, and the estimated surface residue cover.

"T" = _____ t/ac/year Soil erosion = _____ t/ac/year

STIR values for each crop in the rotation = _____

Estimated surface residue cover for each crop in the rotation = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil loss, Soil Tillage Intensity Rating values, and estimated surface residue cover to document that the applied rotation met the enhancement criteria.

Soil erosion = _____ t/ac/year

STIR values for each crop in the rotation = _____

Estimated surface residue cover for each crop in the rotation = _____



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E345115Z

Reduced tillage to increase plant-available moisture: moisture management

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Insufficient Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Establish a reduced till system to increase plant-available moisture. Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations. Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

Criteria:

- Uniformly distribute residues over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Do not burn crop residues.



CONSERVATION STEWARDSHIP PROGRAM

- Field must have an annual soil loss at or below the soil tolerance (T) level for the crop rotation.
- The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop STIR value rating shall be no greater than 80, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.
- Maintain a minimum 60 percent surface residue cover throughout the year.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned. During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable. During implementation, no primary inversion tillage implements (e.g. moldboard plow) will be used.



CONSERVATION STEWARDSHIP PROGRAM

- o During implementation, maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use information provided from the participant to calculate the soil loss, Soil Tillage Intensity Rating values, and estimated surface residue cover using current NRCS wind and water erosion prediction technologies. Verify the enrolled field(s) will have an annual soil loss at or below the soil tolerance (T) level, a Soil Tillage Intensity Rating value of no greater than 80 for each crop in the planned rotation, and the estimated surface residue cover.

"T" = _____ t/ac/year Soil erosion = _____ t/ac/year

STIR values for each crop in the rotation = _____

Estimated surface residue cover for each crop in the rotation = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil loss, Soil Tillage Intensity Rating values, and estimated surface residue cover to document that the applied rotation met the enhancement criteria.

Soil erosion = _____ t/ac/year

STIR values for each crop in the rotation = _____

Estimated surface residue cover for each crop in the rotation = _____



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CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E345115Z - Reduced tillage to increase
plant-available moisture: moisture
management

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E345128Z

Reduced tillage to reduce tillage induced particulate matter

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Air Quality Impacts

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Establish a reduced tillage system to reduce tillage induced particulate matter. Field(s) must have a soil loss at or below the soil tolerance (T) level for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation. The current NRCS wind and water erosion prediction technologies must be used to document soil loss and STIR calculations.

Criteria:

- Uniformly distribute residues over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Do not burn crop residues.
- The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop



CONSERVATION STEWARDSHIP PROGRAM

STIR value rating shall be no greater than 40, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.

- Reduce or modify tillage operations that create dust, especially during critical air quality periods.
- Adopt tillage practices that reduce particulate emissions.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned.
- o During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.



CONSERVATION STEWARDSHIP PROGRAM

- o During implementation, no primary inversion tillage implements (e.g. moldboard plow) will be used.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, verify that the field to be establish in no-till has a soil loss at or below the soil tolerance (T) level for water erosion for the crop rotation and a Soil Tillage Intensity Rating (STIR) of no greater than 40 for each crop in the planned rotation.

"T" = _____ t/ac/year **Soil erosion** = _____ t/ac/year **STIR values** = _____

- o During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o After implementation, if the applied crops, crop rotation, or field operations are different than the planned crops, crop rotation, or field operations, use information provided from the participant to calculate soil loss and the Soil Tillage Intensity Rating values to document that the applied rotation met the enhancement criteria.

Soil erosion = _____ t/ac/year and **STIR values** = _____



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E345144Z

Reduced tillage to reduce energy use

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Inefficient Energy Use

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Establish a reduced tillage system which reduces total energy consumption associated with field operations by at least 25% compared to conventional tillage systems (benchmark). Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 80. The current NRCS wind and water erosion prediction technologies must be used to document STIR calculations and energy consumption.

Criteria:

- Uniformly distribute residues over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Do not burn crop residues.
- The Soil Tillage Intensity Rating (STIR) value shall include all field operations that are performed during the crop interval between harvest of the previous cash crop and harvest or termination of the current cash crop (includes fallow periods). The crop



CONSERVATION STEWARDSHIP PROGRAM

STIR value rating shall be no greater than 80, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.

- Reduce the total energy consumption associated with field operations by at least 25% compared to the benchmark condition. The current NRCS wind and water erosion prediction technologies must be used for determining energy use to document energy use reductions.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the current (benchmark) and planned crop rotation and tillage operation(s) used for each crop.

Field	Acres	Current (Benchmark) Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Current (Benchmark) Field Operation	Timing of Field Operation (month/year)

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)



CONSERVATION STEWARDSHIP PROGRAM

Field	Crop	Planned Field Operation	Timing of Field Operation (month/year)

- o During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- o During implementation, no residue will be burned. During implementation, all residues will be uniformly distributed over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- o During implementation, no primary inversion tillage implements (e.g. moldboard plow) will be used.
- o During implementation, reduce the total energy consumption associated with field operations by at least 25% compared to the current benchmark tillage system.
- o After implementation, if changes to the rotation were made, complete the tables above to document the applied Conservation Crop Rotation for the contract period and provide to NRCS.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, use information provided from the participant to calculate the Soil Tillage Intensity Rating values and energy consumption for both the current system and the planned system using the approved NRCS wind and water erosion prediction technologies. Verify the Soil Tillage Intensity Rating value is no greater than 80 for each crop in the planned rotation and total energy consumption is reduced by at least 25%.
Current STIR values = _____ and Energy Consumption = _____
Planned STIR values = _____ and Energy Consumption = _____
- During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- After implementation, if changes were made to the planned crops, crop rotation, or field operations, use information provided from the participant to calculate the Soil Tillage Intensity Rating values and total energy consumption to document that the applied rotation met the enhancement criteria.
Applied STIR values = _____ and Energy Consumption = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



Conservation Enhancement Activity

E374144Z2

CONSERVATION STEWARDSHIP PROGRAM

Switch fuel source for pump motor(s)

Conservation Practice 374: Farmstead Energy Improvement

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Inefficient Energy Use

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Switch the fuel source for the pump motor(s) indicated in the energy audit to a renewable source (wind, solar, geothermal, etc.). (CPS 533 Pumping Plant)

Criteria

- Implement recommendations for components of a current Type 2 energy audit performed in accordance with the American Society of Agricultural and Biological Engineers (ASABE) Standard S612, Performing On-farm Energy Audits.
- Where required, certify that the replacement or retrofit system and related components or devices meet or exceed currently applicable federal, state, and local standards and guidelines. Components of major activities by farm enterprises defined in ASABE S612 will meet the appropriate NRCS or industry standard, such as:
 - NRCS Conservation Practice Standard, Farmstead Energy Improvements (Code 374)
 - NRCS Conservation Practice Standard, Pumping Plant (Code 533)



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- o NRCS Conservation Practice Standard,
Combustion System Improvement (Code 372)
- Include written specifications describing the following site-specific installation details of installation:
 - o Plan view showing the location of the measures in relation to other structures or natural features, where appropriate.
 - o Estimate of energy and air quality savings from fuel source change.
 - o Method used to protect existing power provider from back feed from renewable source.
 - o Electrical wiring must meet the requirements of the National Electrical Code.
 - o Operation and maintenance plan will be developed that is consistent with the purpose(s) of this practice, its intended life, and safety requirements.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, review current Type 2 energy audit including season of use, motor needs and current operation.
- o Prior to implementation, evaluate site specific renewable energy alternatives.
- o Prior to implementation, coordinate with power provider if new fuel source will be connected to an existing power grid and be responsible for following requirements of the power provider including providing a method to protect the existing power provider from back feed from renewable source.
- o Prior to implementation, evaluate options during lack of production of renewable energy source based on state Conservation Practice Standard and specifications to address the resource concern.
- o Prior to implementation, develop written specifications describing site specific details of installation, including:
 - The replacement or retrofit system and/or related components or devices.
 - Baseline system energy usage and potential energy savings from the implementation of this enhancement.
- o Prior to implementation, develop and provide an operation and maintenance plan for the practice.
- o During implementation, ensure installation meets federal National Electrical Code and any local or state codes.
- o After implementation, provide documentation of installation including first season energy use for comparison to prior years (from energy audit) to NRCS for review to verify implementation of the enhancement.
- o After implementation, monitor and maintain system for life time of the practice (10 years).

NRCS will:

- o Prior to implementation and as needed, NRCS will provide technical assistance.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standards, Farmstead Energy Improvements (Code 374), Pumping Plant (Code 533) and Combustion System Improvement (Code 372) as it relates to implementing this enhancement.



- o Prior to implementation, review with producer costs and benefits for conversion to renewable energy source.
- o Prior to implementation, consider and document the air quality benefits in addition to the energy source savings.
- o After implementation, check and certify installation to ensure it meets NRCS practice standards and site-specific specifications

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E382136Z

Incorporating “wildlife friendly” fencing for connectivity of wildlife food resources

Conservation Practice 382: Fence

APPLICABLE LAND USE: Pasture; Range

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Habitat – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 20 Years

Enhancement Description

Retrofitting or constructing fences that provide a means to control movement of animals, people, and vehicles, but minimizes wildlife movement impacts.

Criteria

- The type and design of fence retrofitting or construction will meet the management objectives and site challenges.
- The fence job sheet will specify:
 - o Animal species of concern, both wildlife and domestic,



CONSERVATION STEWARDSHIP PROGRAM

- o Wildlife movement specific modifications to be made to existing fences to meet these management objectives, or
- o Wildlife movement specific specifications that will be incorporated into newly constructed fences, and
- o Location of the "wildlife friendly" fence(s) and location of the habitat types affected by the fence.
 - Examples:
- o Pronghorn antelope need to be afforded a smooth wire at the bottom of the fence with a 14" height above ground.
- o Deer need a maximum height of 42" with a minimum of 12" between the top two wires.
- o Fawns and turkeys need a stranded fence to negotiate (not woven wire).
- o Fences should be retrofitted to let down and put back up for migrating herds.
- o All open top pipes should be capped for songbirds.
- o If bats or sage grouse/lesser prairie chicken are selected as species of concern, then fences should be marked for visibility.
- o For bats, height requirements above water sources will be honored.
- Height, size, spacing and type of materials used will provide the desired control, life expectancy, and management of people and animals of concern. New fences will be designed, located, and installed to meet appropriate local wildlife and land management needs and requirements.
- Avoid clearing of right-of-way vegetation during the nesting season for migratory birds.
- Plans and specifications are to be prepared for all fence types, installations and specific sites.



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Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, obtain an NRCS job sheet that clearly identifies the species of concern. This document should clearly identify construction techniques for wildlife friendly modifications on existing fences, or specifications for newly constructed fences.
- o If deer or other mammalian wildlife are selected as species of concern follow guidance in Criteria One.
- o If Greater prairie-chickens are selected as a species of concern (only available within geographies identified as being in the buffer zone of a greater prairie-chicken occurrence site as noted in the Missouri Threatened and Endangered Species Heritage Database adapted for NRCS) Criteria Two guidance is to be followed.
- o Criteria One -- Improve Passage:
 - o Openings/crossings should be constructed along known wildlife travel corridors. A minimum of one opening/crossing shall be constructed every ¼ mile of the planned fence length (a minimum of 20 % of all existing fence on the land use(s) must be made wildlife friendly for full implementation).
 - o The width of the opening shall be a minimum of 16 ft. wide.
 - o When retrofitting existing fence for developing openings/crossings use the following measurements:
 - 2-strand permanent electric – the top wire will be ≤ 36” and the bottom wire will be ≥ 18” in height. There will be a minimum of 12” between the top 2 wires.
 - Multi strand barbed wire – the top wire will be ≤ 42” and the bottom wire will be ≥ 18” in height. There will be a minimum of 12” between the top 2 wires.
 - Woven wire – There are two requirements to retrofit this type of fence.
 - The top strand of barbed or high tensile wire shall be covered with a PVC pipe or similar smooth material. There will be a minimum of 12” between the top 2 wires. If there is not adequate height on the post to allow for

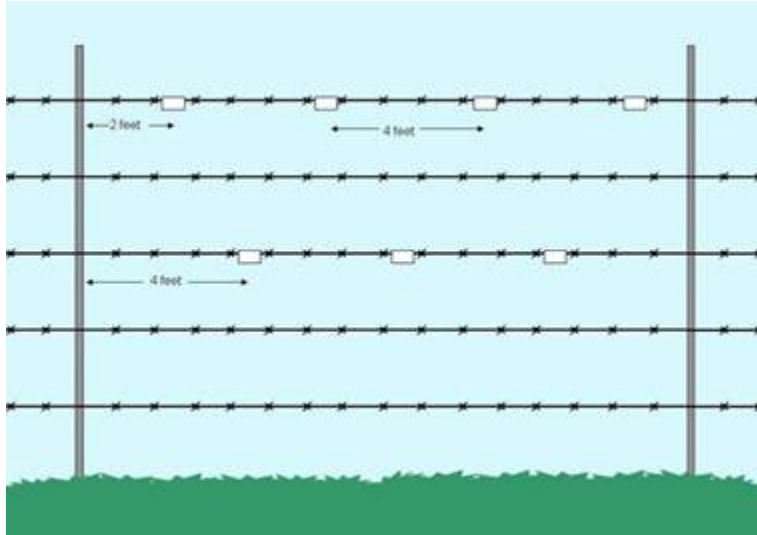


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- *the 12" spacing, then the wire(s) should be lowered to the top of the woven wire and covered with PVC pipe.*
 - *A crawl under shall be constructed by removing 18" of the bottom of the woven fence a minimum of 10 ft. long or raising the bottom of the fence $\geq$ 18" from the ground a minimum of 10 ft. long. This can be accomplished at the opening/crossing location where the top wire was adjusted, or at the nearest brace/stretch location. If the latter is chosen, on crawl under shall be constructed per opening/crossing constructed.*
- o *Criteria Two -- Improve Visibility:*
- o *Visual markers shall be placed on the entire length of planned fence including the openings/crossings (a minimum of 20% of all existing fence) and will be highly visible vinyl markers, PVC pipe or other similar materials (no flagging tape). White vinyl "under sill" or trim strips are readily available at most hardware stores and are relatively low in cost.*
 - o *Pieces should be at least 3" in length. Markers will be placed on the top wire and on the third strand of a multi-strand fence. On single or 2 strand fence, markers will be placed on all strands.*
 - o *On existing woven wire fence, markers will be placed on the top most strand then 10-12" down from top should be marked, staggered, as described in 4 and 5.*
 - o *For the top wire, place the first marker 2 feet from the corner post, with 4 foot spacing for each subsequent marker.*
 - o *For the third wire, use the same spacing except that it will begin 4 feet from the post, thus staggering the markers (see diagram and photos below).*



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- o Prior to implementation, develop a map with assistance from NRCS as needed, which identifies the location of the wildlife friendly fences to be modified or constructed.
- o During implementation, consult with NRCS if there are any changes to modification or construction techniques.
- o After implementation, provide a map of the actual location of constructed or modified fences for review to verify the enhancement was implemented.
- o After implementation, provide pictures of newly constructed or modified fences depicting the specified construction techniques to benefit wildlife for review to verify the enhancement was implemented.
- o *During implementation:*
 - o *Avoid clearing of right-of-way vegetation for fence construction during the Missouri primary nesting season (May 1 – July 15).*
 - o *Not use woven wire fencing for any new construction.*
 - o *Consider that a fence of any height is more difficult to cross when placed across a steep slope or next to a deep ditch.*
 - o *Cap all open top pipes for songbirds*



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o Prior to implementation, as requested, assist the participant in the development of a map identifying the location of wildlife friendly fences to be constructed or modified.
- o Prior to implementation, develop a job sheet (or specification as required in the state) for the participant that details wildlife friendly construction techniques.
- o During implementation, assist the participant with modification of construction techniques to allow fences to function for both wildlife and domestic species.
- o After implementation, review actual fence location map and photo documentation of constructed or modified wildlife friendly fences.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E386101Z

Enhanced field borders to reduce water induced erosion along the edge(s) of a field

Conservation Practice 386: Field Border

**APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Associated Ag Land**

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description:

Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover along the edge(s) of the field.

Criteria:

- Field borders shall be established at selected field edges at a width of at least 30 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Orient plant rows as closely as possible to perpendicular to sheet flow direction.
- Field borders shall be established to adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.



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- Plants selected for field borders will have the physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area. No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Field border establishment, in conjunction with other practices, will be timed so that the soil will be adequately protected during the critical erosion period(s).
- Establish stiff-stemmed, upright grasses, grass/legumes or forbs to trap water- borne soil particles.
- The amount of surface and/or canopy cover needed from the field border shall be determined using current approved water and wind erosion prediction technology. Soil erosion estimates shall account for the effects of other practices in the management system.
- Operation and maintenance requirements:
 - o Repair storm damage.
 - o Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
 - o Shut off sprayers and raise tillage equipment to avoid damage to field borders.
 - o Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.



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- o Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
- o Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
- o Repair and reseed ephemeral gullies and rills that develop in the border.
- o Minimally invasive vertical tillage (e.g. paraplowing) may be performed in rare cases where compaction and vehicle traffic have degraded the field border function. The purpose of the tillage is strictly to relieve soil compaction and increase infiltration rates so as to provide a better media for reestablishment of vegetation and field border function.
- o When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
- o Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- o Avoid vehicle traffic when soil moisture conditions are saturated.



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- o Maintain records of the field border maintenance as needed by the land user.

Documentation and Implementation Requirements:

Participant will:

- o Prior to implementation, prepare the planned area for vegetation establishment. *Refer to Missouri NRCS Conservation Practice Standards Field Border (386) and Critical Area Planting (342) for criteria. Also, see the Conservation Specification Vegetation Establishment, Herbaceous Seeding (723) for additional criteria.* NRCS will provide technical assistance, as needed. Total planned amount of field border extension = _____ feet
- o Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. NRCS will provide technical assistance, as needed.

Species	Seeding Rate (lb/ac pure live seed)	Note specific species characteristic(s)

- o Prior to implementation, select liming and fertilizer requirements, planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Method	
Lime and Fertilizer Required	



CONSERVATION STEWARDSHIP PROGRAM

- o During implementation, install and maintain erosion control measures as needed for the site. NRCS will provide technical assistance, as needed.
- o During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- o During implementation, protect the planting from plant and animal pests and fire. After implementation, maintain and protect the planting from plant and animal pests and fire.
- o After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet

NRCS will:

- o Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- o Prior to implementation, provide and explain NRCS Conservation Practice Field Border (386) and Critical Area Planting (342) as it relates to implementing this enhancement.
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = _____ feet
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o *Planning site preparation meeting Missouri NRCS Conservation Practice Standards Field Border (386) and Critical Area Planting (342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (723).*
 - o Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.



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- o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o Planning the use of additional erosion control, as needed for the site.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the vegetation was established to specifications developed for the site. After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet
- o *After implementation, document the completion of this enhancement on the Field Border Implementation Requirements form and attach a copy of the completed MO Seeding Calculator form.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E386106Z

Enhanced field borders to increase carbon storage along the edge(s) of a field

Conservation Practice 386: Field Border

**APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Associated Ag Land**

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description:

Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover and dense rooting system along the edge(s) of the field.

Criteria:

- Field borders shall be established along selected field edges at a width of at least 30 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Field borders shall be established to adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.



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- Establish plant species that will produce adequate above- and below-ground biomass for the site.
- Maximize the width and length of the herbaceous border to fit the site and increase total biomass production.
- Do not burn the field border
- Do not disturb the roots of the established vegetation with tillage.
- Plants selected for field borders will have the physical characteristics necessary to produce adequate round cover and dense rooting system. No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area. • Operation and maintenance requirements:
 - o Repair storm damage.
 - o Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
 - o Shut off sprayers and raise tillage equipment to avoid damage to field borders.



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- Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
- Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
- Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
- Repair and reseed ephemeral gullies and rills that develop in the border.
- When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
- Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- Avoid vehicle traffic when soil moisture conditions are saturated.
- Maintain records of the field border maintenance as needed by the land user.



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Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. Refer to *Missouri NRCS Conservation Practice Standards Field Border (386) and Conservation Cover (327) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (723)*. NRCS will provide technical assistance, as needed. Total planned amount of field border extension = _____feet Minimum width is 30 feet total.
- Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. NRCS will provide technical assistance, as needed.

Species	Seeding Rate (lb/ac pure live seed)	Note specific species characteristic(s)

- Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Method	
Lime and Fertilizer Requirements	

- During implementation, install and maintain erosion control measures as needed for the site. NRCS will provide technical assistance, as needed.
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.



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- o During implementation, protect the planting from plant and animal pests and fire.
- o After implementation, maintain and protect the planting from plant and animal pests and fire.
- o After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____feet

NRCS will:

- o Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- o *Prior to implementation, provide and explain Missouri NRCS Conservation Practice Standards Field Border (386) and Conservation Cover (327) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (723) as it relates to implementing this enhancement.*
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = _____feet
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o *Planning site preparation meeting Missouri NRCS Conservation Practice Standards Field Border (386) and Conservation Cover (327) and the Vegetation Establishment, Herbaceous Seeding (723) specification.*
 - o Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical



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notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the vegetation was established to specifications developed for the site. After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet.
- o *After implementation, complete the Field Border Implementation Requirements form and attach a copy of the MO Seeding Calculator as enhancement documentation.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E386128Z

Enhanced field borders to decrease particulate emissions along the edge(s) of a field

Conservation Practice 386: Field Border

**APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Associated Ag Land**

RESOURCE CONCERN ADDRESSED: Air Quality Impacts

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description:

Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that decrease the particulate emissions along the edge(s) of the field.

Criteria:

- Field borders shall be established along selected field edges at a width of at least 40 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Plants selected for field borders will have the physical characteristics to optimize the interception and adhesion of airborne particles (species with a mature height of at



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least 2 feet). No plant listed by the state as a noxious or invasive species shall be established in the field border.

- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Do not burn the field border.
- Operation and maintenance requirements.
 - o Repair storm damage.
 - o Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
 - o Shut off sprayers and raise tillage equipment to avoid damage to field borders.
 - o Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
 - o Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.



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- o Schedule mowing, harvest, weed control, and other management activities within the field border to accommodate the plants ability to intercept particulate emissions. Vehicle traffic should be avoided in the field border area.
- o Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
- o Repair and reseed ephemeral gullies and rills that develop in the border.
- o When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
- o Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- o Avoid vehicle traffic when soil moisture conditions are saturated.
- o Maintain records of the field border maintenance as needed by the land user.



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Documentation and Implementation Requirements:

Participant will:

- o Prior to implementation, prepare the planned acres for vegetation establishment. *Refer to Missouri NRCS Conservation Practice Standard Field Border (386) and Conservation Cover (327) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (723). NRCS will provide technical assistance, as needed. Total planned amount of field border extension = _____feet Minimum width of the field border is 40 feet total.*
- o Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. NRCS will provide technical assistance, as needed.

Species	Seeding Rate (lb/ac pure live seed)	Note specific species characteristic(s)

- o Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Method	
Lime and Fertilizer Requirements	

- o During implementation, install and maintain erosion control measures as needed for the site. NRCS will provide technical assistance, as needed.
- o During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.



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- o During implementation, protect the planting from plant and animal pests and fire. After implementation, maintain and protect the planting from plant and animal pests and fire.
- o After implementation, verify the total amount of field border extension implemented. Total implemented amount of field border extension = _____ feet

NRCS will:

- o Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- o *Prior to implementation, provide and explain NRCS Conservation Practice Standards Field Border (386) and Conservation Cover (327) and the Vegetation Establishment, Herbaceous Seeding (723) specification as it relates to implementing this enhancement.*
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = _____ feet
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o *Planning site preparation meeting Missouri NRCS Conservation Practice Standards Field Border (386) and Conservation Cover (327) and the Vegetation Establishment, Herbaceous Seeding (723) specification.*
 - o Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.
 - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.



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- o *Planning the use of additional erosion control, as needed for the site.*
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the vegetation was established to specifications developed for the site. After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet
- o *After implementation, complete the Field Border Implementation Requirements form and attach a copy of the MO Seeding Calculator as enhancement documentation.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E386136Z

Enhanced field borders to increase food for pollinators along the edge(s) of a field

Conservation Practice 386: Field Border

**APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Associated Ag Land**

RESOURCE CONCERN ADDRESSED: Fish & Wildlife - Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description:

Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide food for pollinators along the edge(s) of the field.

Criteria:

- Field borders shall be established along selected field edges at a width of at least 40 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Field borders shall be established to a mixture adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.



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- **The NRCS at the state level will develop lists of plants suitable for pollinator habitat. The lists must emphasize as many native species as practical.**
- Plants selected for field borders will have the physical characteristics necessary to produce pollen during multiple seasons.
- No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Operation and maintenance requirements:
 - o Repair storm damage.
 - o Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
 - o Shut off sprayers and raise tillage equipment to avoid damage to field borders.
 - o Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.



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- o Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
- o Schedule mowing, harvest, weed control, and other management activities within the field border to accommodate reproduction and other life cycle requirements of target wildlife species. Vehicle traffic should be avoided in the field border area.
- o Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
- o Repair and reseed ephemeral gullies and rills that develop in the border.
- o When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
- o Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- o Avoid vehicle traffic when soil moisture conditions are saturated.
- o Maintain records of the field border maintenance as needed by the land user.



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Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. Refer to Missouri NRCS Conservation Practice Standards Field Border (386) and Upland Wildlife Habitat Management (645) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (723). NRCS will provide technical assistance, as needed. Total planned amount of field border extension = _____ feet and area to be planted = _____ square feet.
- Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. Seeding rates will be the base rate listed in Table 1 of the Vegetation Establishment, Herbaceous Seeding (723) specification. An alternate method of determining seed rates is to use the Missouri Wildlife Seed Calculator. Minimum seed requirements using this alternate method will be 40 seeds per square foot when mechanically planted and 60 seeds per square foot when seed is broadcasted. NRCS will provide technical assistance, as needed.

Species	Seeding Rate (lbs./ac pure live seed)	Note specific species characteristic(s)

- Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. NRCS will provide technical assistance, as needed.



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Planting Date	
Planting Method	
Lime and Fertilizer Requirements	

- o During implementation, install and maintain erosion control measures as needed for the site. NRCS will provide technical assistance, as needed.
- o During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- o During implementation, protect the planting from plant and animal pests and fire. After implementation, maintain and protect the planting from plant and animal pests and fire.
- o *After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet and area planted = _____ square feet.*

NRCS will:

- o Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- o *Prior to implementation, provide and explain Missouri NRCS Conservation Practice Standards Field Border (386) and Upland Wildlife Habitat Management (645) along with Conservation Specification Vegetation Establishment, Herbaceous Seeding (723) as it relates to implementing this enhancement.*
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = _____ feet
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:



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- o *Planning site preparation meeting Missouri NRCS Conservation Practice Standard Field Border (Code 386) and the Vegetation Establishment, Herbaceous Seeding (723) specification.*
- o Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
- o Selecting planting techniques and timing appropriate for the site and soil conditions.
- o Planning the use of additional erosion control, as needed for the site.
- o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the vegetation was established to specifications developed for the site.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o *After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet and area planted = _____ square feet.*
- o *After implementation, complete the Field Border Implementation Requirements form and attach a printout of the MO Seeding Calculator or the Missouri Wildlife Seed Calculator as enhancement documentation.*



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E386137Z

Enhanced field borders to increase wildlife food and cover along the edge(s) of a field

Conservation Practice 386: Field Border

**APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Associated Ag Land**

RESOURCE CONCERN ADDRESSED: Fish & Wildlife - Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description:

Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide wildlife food and cover along the edge(s) of the field.

Criteria:

- Field borders shall be established along selected field edges at a width of at least 40 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Field borders shall be established to a mixture adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.
- Plants selected for field borders will have the physical characteristics necessary to produce wildlife food and cover for the targeted species.



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- No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Operation and maintenance requirements:
 - Repair storm damage.
 - Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
 - Shut off sprayers and raise tillage equipment to avoid damage to field borders.
 - Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
 - Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
 - Schedule mowing, harvest, weed control, and other management activities within the field border to accommodate reproduction and other life cycle requirements of target wildlife species. Vehicle traffic should be avoided in the field border area.
 - Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
 - Repair and reseed ephemeral gullies and rills that develop in the border.



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- o When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
- o Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- o Avoid vehicle traffic when soil moisture conditions are saturated.
- o Maintain records of the field border maintenance as needed by the land user.



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Documentation and Implementation Requirements:

Participant will:

- o Prior to implementation, prepare the planned acres for vegetation establishment. Refer to NRCS Conservation Practice Standards Field Border (386) and Upland Wildlife Habitat Management (645) and the Conservation Specification Vegetative Establishment, Herbaceous Seeding (723). NRCS will provide technical assistance, as needed.) Total planned amount of field border extension = _____ feet and total area to be planted _____ square feet.
- o Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. Seeding rates will be the base rate listed in Table 1 of the Vegetation Establishment, Herbaceous Seeding (723) specification. An alternate method of determining seed rates is to use the Missouri Wildlife Seed Calculator. Minimum seed requirements using this alternate method will be 40 seeds per square foot when mechanically planted and 60 seeds per square foot when seed is broadcasted. NRCS will provide technical assistance, as needed.

Species	Seeding Rate (lbs./ac pure live seed)	Note specific species characteristic(s)

- o Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)



CONSERVATION STEWARDSHIP PROGRAM

Planting Date	
Planting Method	
Lime and Fertilizer Requirements	

- During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- During implementation, protect the planting from plant and animal pests and fire. After implementation, maintain and protect the planting from plant and animal pests and fire.
- *After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet and total area planted = _____ square feet.*
- *After implementation, provide NRCS with documentation of seedbed preparation, planting method, planting date, species planted, planting rates, and planting depth.*

NRCS will:

- Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- *Prior to implementation, provide and explain NRCS Conservation Practice Standards Field Border (386) and Upland Wildlife Habitat Management (645) along with the Vegetation Establishment, Herbaceous Seeding (723) specification as it relates to implementing this enhancement.*
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = _____ feet



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
 - *Planning site preparation meeting Missouri NRCS Conservation Practice Standards Field Border (386) and Upland Wildlife Habitat Management (645) and the Vegetation Establishment, Herbaceous Seeding (723) specification.*
 - Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
 - Selecting planting techniques and timing appropriate for the site and soil conditions.
 - Planning the use of additional erosion control, as needed for the site.
 - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the vegetation was established to specifications developed for the site. After implementation, verify the planting is protected from pests and fire.
- After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- *After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet and total area planted = _____ square feet.*
- *After implementation, complete the Field Border Implementation Requirements form and attach a printout of the MO Seeding Calculator or the Missouri Wildlife Seed Calculator as enhancement documentation.*



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E386139Z

Enhanced field borders to increase wildlife habitat continuity along the edge(s) of a field

Conservation Practice 386: Field Border

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Associated Ag Land

RESOURCE CONCERN ADDRESSED: Fish & Wildlife - Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description:

Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide wildlife habitat continuity along the edge(s) of the field.

Criteria:

- Field borders shall be established along selected field edges at a width of at least 40 feet.
- The field border must connect an existing field border to another field border or to an existing or planned wildlife area (e.g. wood lot, CRP, Pond, Rangeland, etc.).
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.



CONSERVATION STEWARDSHIP PROGRAM

- Field borders shall be established to a mixture adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.
- Plants selected for field borders will have the physical characteristics necessary to produce wildlife food, cover and habitat continuity for the targeted species. No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Operation and maintenance requirements:
 - Repair storm damage.
 - Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
 - Shut off sprayers and raise tillage equipment to avoid damage to field borders.
 - Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.



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- o Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
- o Schedule mowing, harvest, weed control, and other management activities within the field border to accommodate reproduction and other life cycle requirements of target wildlife species. Vehicle traffic should be avoided in the field border area.
- o Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
- o Repair and reseed ephemeral gullies and rills that develop in the border.
- o When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
- o Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- o Avoid vehicle traffic when soil moisture conditions are saturated.
- o Maintain records of the field border maintenance as needed by the land user.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. *Refer to Missouri NRCS Conservation Practice Standards Field Border (386) and Upland Wildlife Habitat Management (645) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (723). NRCS will provide technical assistance, as needed. Total planned amount of field border extension = _____ feet and total area to be seeded = _____ square feet.*
- Prior to implementation, plan the field border extension to an existing field border which connects to another field border or to an existing or planned wildlife area (e.g. wood lot, CRP, Pond, Rangeland, etc.). Total planned areas connected = _____ Total planned acres connected = _____
- Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. *Seeding rates will be the base rate listed in Table 1 of the Vegetation Establishment, Herbaceous Seeding (723) specification. An alternate method of determining seed rates is to use the Missouri Wildlife Seed Calculator. Minimum seed requirements using this alternate method will be 40 seeds per square foot when mechanically planted and 60 seeds per square foot when seed is broadcasted. NRCS will provide technical assistance, as needed.*

Species	Seeding Rate (lb/ac pure live seed)	Note specific species characteristic(s)



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Method	
Lime and Fertilizer Requirements	

- During implementation, install and maintain erosion control measures as needed for the site. NRCS will provide technical assistance, as needed.
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- During implementation, protect the planting from plant and animal pests and fire.
- After implementation, maintain and protect the planting from plant and animal pests and fire.
- After implementation, verify the total amount of field border implemented and areas connected. Total implemented amount of field border extension = _____ feet and total acres connected = _____ acres.
- *After implementation, provide NRCS with documentation of seedbed preparation, planting method, planting date, species planted, planting rates, and planting depth.*

NRCS will:

- Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- *Prior to implementation, provide and explain NRCS Conservation Practice Standards Field Border (Code 386) and Upland Wildlife Habitat Management (645) along with the Vegetation Establishment, Herbaceous Seeding (723) specification as it relates to implementing this enhancement.*



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- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = _____ feet
- o Prior to implementation, verify the field border extension connects to another field border or to an existing or planned wildlife area (e.g. wood lot, CRP, Pond, Rangeland, etc.). Total planned areas connected = _____
Total planned acres connected = _____ acres.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o *Planning site preparation meeting Missouri NRCS Conservation Practice Standards Field Border (386) and Upland Wildlife Habitat Management (645) and the Vegetation Establishment, Herbaceous Seeding (723) specification.*
 - o Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the vegetation was established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.



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- o After implementation, verify the total amount of field border implemented and areas connected.
Total implemented amount of field border extension = _____ feet
Total areas connected = _____ Total acres connected = _____
- o *After implementation, complete the Field Border Implementation Requirements form and attach a printout of the MO Seeding Calculator or the Missouri Wildlife Seed Calculator as enhancement documentation.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E390118Z

Increase riparian herbaceous cover width for nutrient reduction

Conservation Practice 390: Riparian Herbaceous Cover

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 5 Years

Enhancement Description

Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of nutrient removal from surface and subsurface flows.

Criteria

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer width requirement, whichever is greater. Maximum enhancement buffer width may be increased up to the greater of 100 feet or the State-allowed maximum width.
- To the extent possible, the buffer area and extended buffer will be shaped and vegetated to increase overland flow interception.



CONSERVATION STEWARDSHIP PROGRAM

- Concentrated flow erosion or mass soil movement shall be controlled in the up gradient area prior to establishment of the riparian herbaceous cover.
- Existing underground functional drains that pass through these areas shall be replaced with rigid, non-perforated pipe through the buffer or equipped with a management regulating structure to allow control of overflow.
- Species selected shall have stiff stems and high stem density near the ground surface to reduce water velocities and facilitate infiltration into the floodplain. Only viable, high quality and site adapted planting stock will be used. Selection of native plants is recommended.
- In areas where native seeds and propagules are present, natural regeneration can be used in lieu of planting. Planting is required if no native seed bank is present.
- Selected plant species must be adapted to the projected duration of saturation and inundation of the site.
- Where available, use Ecological Site Description to guide restoration to appropriate vegetative community phase and include appropriate vegetative functional groups.
- Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species.
- Management systems applied will be designed to maintain or improve the vigor and reproduction of the desired plant community.
- Harmful pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.



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- Protect riparian vegetation by reducing or excluding haying and grazing until the desired plant community is well established, with grazing deferred for a minimum of two years.
- Design the expanded buffer enhancement for an expected life of at least 5 years.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, prepare the planned buffer area for vegetation establishment. Refer to NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390). (NRCS will provide technical assistance, as needed). *Enhance existing buffers (must be at least 30 feet wide) to a width of at least 2.5 times the stream width or minimum 50 feet for waterbodies. No enhanced buffer should be less than 50 feet wide per side.*
- Prior to implementation, in areas that are highly disturbed and are unlikely to have existing native seed in the soil work closely with NRCS to select plant species that are adapted to your specific site. (NRCS will provide technical assistance, as needed.) *Reference the Native Pollinators (JS-MO634Pollinator) job sheet for forb species selection, the Upland Wildlife Habitat Management (645) practice standard, and the Wildlife and Pollinator Plantings Job Sheet (MO645).*
 - *In Missouri, follow the Nesting Cover planting specifications in the 645-Wildlife and Pollinator Plantings Job sheet:*
 1. *Minimum seeding rate of 20 PLS/ft² for all species, maximum of 30 PLS/ft².*
 2. *Native grasses comprise 40-50 percent of the total PLS/ft², and must include at least 2 different species of grasses. Little bluestem and/or side-oats gramma is required to be included.*
 3. *Forbs must comprise ≥50 percent of total PLS/ft² and include at least 20 native species.*
 4. *No single species of forb will be included at rates over 10 percent by PLS/ft² or less than 0.1 percent PLS/ft².*
 5. *Annual/biennial forbs will not exceed 10 percent (combined) of the mix by PLS/ft².*
- *For sites where wetness and flooding are the main management concerns, species with a Wet Soil Tolerance Rating of Medium to High in Table 1 of the 723 specification will be selected. Select species with stiff stems and high stem density near the ground surface to reduce water velocities and facilitate infiltration into the floodplain. Grass species with fibrous roots are desired to intercept nutrients in the soil.*

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CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, attach the Seeding plan created in the Missouri Wildlife Seed Calculator.

Species	Species type (grass, legume, forb)	Rate (Lbs/Ac) PLS

- o Prior to implementation, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed). *In Missouri, reference the Wildlife and Pollinator Plantings Job Sheet (MO645) for establishment recommendations.*

Planting Date	
Planting Technique	
Seeding Depth	

- o During implementation, grade the site, as needed, to eliminate concentrated flow through the buffer including that from uphill from the buffer.
- o During implementation, replace any underground functional tile drains that pass through the buffer with rigid, non-perforated pipe or install a management regulating structure to allow overflow control.
- o During implementation, conduct planting of selected species according to dates, techniques, depth, and other requirements listed in the plan.
- o During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.
- o During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.
- o After implementation, control harmful pests at the site, as necessary, and in a manner that mitigates impacts to pollinators.



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- o After implementation, schedule management outside of nesting period (May 1 – July 15) and allow for regrowth of adequate vegetation height (recommended 8 inches for cool-season grasses and 12 inches for warm-season grasses) by time of first killing frost.
- o After implementation, protect the area by reducing haying and excluding grazing until the plant community is established, deferring grazing for a minimum of two years.

NRCS will:

- o Prior to implementation, provide and explain NRCS Conservation Practice Standard
- o Riparian Herbaceous Cover (Code 390) to show how it relates to this enhancement. *In Missouri, also provide the Wildlife and Pollinator Plantings Job Sheet (MO645), and the Native Pollinators (JS-MO634Pollinator) job sheet.*
- o Prior to implementation, verify the enhancement is planned for cropland.
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for riparian herbaceous cover.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Preparing a site plan that meets NRCS Conservation Practice Standard Riparian Herbaceous Cover (CPS 390).
 - o Selecting the stiff-stemmed species of grasses and/or perennial forbs best suited to site saturation and inundation conditions.
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation. *In Missouri, document practice*



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specifications completed using the Wildlife and Pollinator Plantings Job Sheet (MO645) and Seeding Plan created using the Missouri Wildlife Seed Calculator.

- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify the vegetation was established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests, has had limited haying, and that grazing is being excluded, if established less than two years.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E390126Z

Increase riparian herbaceous cover width to reduce sediment loading

Conservation Practice 390: Riparian Herbaceous Cover

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 5 Years

Enhancement Description

Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of sediment removal from surface flows.

Criteria

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer width requirement, whichever is greater. Maximum enhancement buffer width may be increased up to the greater of 100 feet or the State-allowed maximum width.
- To the extent possible, the buffer area and extended buffer will be shaped and vegetated to increase overland flow interception.
- Concentrated flow erosion or mass soil movement shall be controlled in the up gradient area prior to establishment of the riparian herbaceous cover.



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- Species selected shall have stiff stems and high stem density near the ground surface to reduce water velocities and facilitate infiltration into the floodplain. Only viable, high quality and site-adapted planting stock will be used. Selection of native plants is recommended.
- In areas where native seeds and propagules are present, natural regeneration can be used in lieu of planting. Planting is required if no native seed bank is present.
- Selected plant species must be adapted to the projected duration of saturation and inundation of the site.
- Where available, use Ecological Site Description to guide restoration to appropriate vegetative community phase and include appropriate vegetative functional groups.
- Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species.
- Management systems applied will be designed to maintain or improve the vigor and reproduction of the desired plant community.
- Harmful pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.
- Protect riparian vegetation by reducing or excluding haying and grazing until the desired plant community is well established, with grazing deferred for a minimum of two years.
- Design the expanded buffer enhancement for an expected life of at least 5 years.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, prepare the planned buffer area for vegetation establishment. Refer to NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390). (NRCS will provide technical assistance, as needed). *Enhance existing buffers (must be at least 30 feet wide) to a width of at least 2.5 times the stream width or minimum 50 feet for waterbodies. No enhanced buffer should be less than 50 feet wide per side.*
- Prior to implementation, in areas that are highly disturbed and are unlikely to have existing native seed in the soil work closely with NRCS to select plant species that are adapted to your specific site. (NRCS will provide technical assistance, as needed.) *Reference the Native Pollinators (JS-MO634Pollinator) job sheet for forb species selection, the Upland Wildlife Habitat Management (645) practice standard, and the Wildlife and Pollinator Plantings Job Sheet (MO645).*
 - *In Missouri, follow the Nesting Cover planting specifications in the 645-Wildlife and Pollinator Plantings Job sheet:*
 1. *Minimum seeding rate of 20 PLS/ft² for all species, maximum of 30 PLS/ft².*
 2. *Native grasses comprise 40-50 percent of the total PLS/ft², and must include at least 2 different species of grasses. Little bluestem and/or side-oats gramma is required to be included.*
 3. *Forbs must comprise ≥50 percent of total PLS/ft² and include at least 20 native species.*
 4. *No single species of forb will be included at rates over 10 percent by PLS/ft² or less than 0.1 percent PLS/ft².*
 5. *Annual/biennial forbs will not exceed 10 percent (combined) of the mix by PLS/ft².*
- *For sites where wetness and flooding are the main management concerns, species with a Wet Soil Tolerance Rating of Medium to High in Table 1 of the 723 Specification will be selected. Select species with stiff stems and high stem density near the ground surface to reduce water velocities and facilitate infiltration into the floodplain.*



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- o Prior to implementation, attach the Seeding plan created in the Missouri Wildlife Seed Calculator.

Species	Species type (grass, legume, forb)	Rate (Lbs/Ac) PLS

- o Prior to implementation, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed). *In Missouri, reference the Wildlife and Pollinator Plantings Job Sheet (MO645) for establishment recommendations.*

Planting Date	
Planting Technique	
Seeding Depth	

- o During implementation, grade the site, as needed, to eliminate concentrated flow through the buffer including that from uphill from the buffer.
- o During implementation, conduct planting of selected species according to dates, techniques, depth, and other requirements listed in the plan.
- o During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.
- o During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.
- o After implementation, control harmful pests at the site, as necessary, and in a manner that mitigates impacts to pollinators.
- o *After implementation, schedule management outside of nesting period (May 1 – July 15) and allow for regrowth of adequate vegetation height (recommended 8*



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inches for cool-season grasses and 12 inches for warm-season grasses) by time of first killing frost.

- o After implementation, protect the area by reducing haying and excluding grazing until the plant community is established, deferring grazing for a minimum of two years.

NRCS will:

- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390) to show how it relates this enhancement. *In Missouri, also provide the Wildlife and Pollinator Plantings Job Sheet (MO645), and the Native Pollinators (JS-MO634Pollinator) job sheet.*
- o Prior to implementation, verify the enhancement is planned for cropland.
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for riparian herbaceous cover.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Preparing a site plan that meets NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 391).
 - o Selecting the stiff-stemmed species of grasses and/or perennial forbs best suited to site saturation and inundation conditions and sediment trapping.
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation. *In Missouri, document practice specifications completed using the Wildlife and Pollinator Plantings Job Sheet (MO645) and Seeding Plan created using the Missouri Wildlife Seed Calculator.*



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- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify the vegetation was established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests, has had limited haying, and that grazing is being excluded, if established less than two years.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E390136Z

Increase riparian herbaceous cover width to enhance wildlife habitat

Conservation Practice 390: Riparian Herbaceous Cover

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Associated Ag Land; and Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 Years

Enhancement Description

Where an existing herbaceous riparian buffer is located along a river, stream, pond, lake, or other waterbody, increase the diversity of native species, control invasive species, install fencing and relocate equipment operations, trails, and livestock, and increase the width of the buffer.

Criteria

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer-width requirement, whichever is greater. Maximum enhancement buffer width may be increased up to the greater of 100 feet or the State-allowed maximum width.
- The management plan shall consider habitat and wildlife objectives such as habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and native plant communities.



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- Select native species adapted to the site. Selected species should have multiple values such as those suited for biomass, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, and tolerance to locally used herbicides.
- Density of the vegetative stand established shall be managed for targeted wildlife habitat requirements and shall encourage plant diversity. The location, layout and vegetative structure and composition of the buffer should complement natural features.
- Corridor configuration, establishment procedures and management should enhance habitats for threatened, endangered and other plant or animal species of concern, where applicable.
- Include forbs and legumes that provide pollen and nectar for native pollinators. Utilize a diverse mix of plant species that bloom at different times throughout the year.
- If mowing is necessary to maintain herbaceous cover it will occur outside the nesting and fawning season and allow for adequate re-growth for winter cover. To protect pollinators and maintain habitat with a diversity of plant structure, a third or less of the site should be disturbed (mowed, grazed, burned, etc.) each year, allowing for recolonization of pollinators from surrounding habitat.
- Harmful plant and animal pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.
- Protect riparian vegetation by reducing or excluding haying and grazing until the desired plant community is well established, with grazing deferred for a minimum of two years.
- Control access of people, machinery, and livestock to the riparian zone with fencing.
- Design the expanded buffer enhancement for an expected life of at least 5 years.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, prepare the planned buffer area for vegetation establishment. Refer to NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390). (NRCS will provide technical assistance, as needed). *In Missouri, enhance an existing buffer to a width of at least 1.5 times the stream width or 35 feet, whichever is greater. Refer to the Upland Wildlife Habitat Management (645) conservation practice, the Wildlife and Pollinator Plantings Job Sheet (MO645), and the Native Pollinators (JS-MO634Pollinator) job sheet.*
- Prior to implementation, in areas that are highly disturbed and are unlikely to have existing native seed in the soil work closely with NRCS to select plant species that are adapted to your specific site. (NRCS will provide technical assistance, as needed). *Reference the Native Pollinators (JS-MO634Pollinator) job sheet for forb species selection, the Upland Wildlife Habitat Management (645) practice standard, and the Wildlife and Pollinator Plantings Job Sheet (MO645).*
 - *In Missouri, follow the Nesting Cover planting specifications in the 645-Wildlife and Pollinator Plantings Job sheet:*
 1. *Minimum seeding rate of 20 PLS/ft² for all species, maximum of 30 PLS/ft².*
 2. *Native grasses comprise 40-50 percent of the total PLS/ft², and must include at least 2 different species of grasses. Little bluestem and/or side-oats gramma is required to be included.*
 3. *Forbs must comprise ≥50 percent of total PLS/ft² and include at least 20 native species.*
 4. *No single species of forb will be included at rates over 10 percent by PLS/ft² or less than 0.1 percent PLS/ft².*
 5. *Annual/biennial forbs will not exceed 10 percent (combined) of the mix by PLS/ft².*



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- For sites where wetness and flooding are the main management concerns, species with a Wet Soil Tolerance Rating of Medium to High in Table 1 of the 723 Specification will be selected.
- Prior to implementation, attach the Seeding plan created in the Missouri Wildlife Seed Calculator.

Species	Species type (grass, legume, forb)	Rate (Lbs/Ac) PLS

- Prior to implementation, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed). *In Missouri, reference the Wildlife and Pollinator Plantings Job Sheet (MO645) for establishment recommendations.*

Planting Date	
Planting Technique	
Seeding Depth	

- During implementation, grade the site, as needed, to eliminate concentrated flow through the buffer including that from uphill from the buffer.
- During implementation, conduct planting of selected species according to dates, techniques, depth, and other requirements listed in the plan.
- During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.
- During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.



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- o After implementation, control harmful pests at the site, as necessary, and in a manner that mitigates impacts to pollinators.
- o *After implementation, schedule management outside of nesting period (May 1 – July 15) and allow for regrowth of adequate vegetation height (recommended 8 inches for cool-season grasses and 12 inches for warm-season grasses) by time of first killing frost.*
- o After implementation, protect the area by reducing haying and excluding grazing until the plant community is established, deferring grazing for a minimum of two years.

NRCS will:

- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390) to show how it relates to this enhancement. *In Missouri, also provide the Wildlife and Pollinator Plantings Job Sheet (MO645), and the Native Pollinators (JS-MO634Pollinator) job sheet.*
- o Prior to implementation, verify this enhancement is planned for cropland.
- o Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species and meet with participant to review the Management Plan.
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for riparian herbaceous cover.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation meeting NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390).
 - o Selecting plant species that meet habitat needs of targeted wildlife species, and that have multiple values such as those suited for biomass, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, tolerance to locally used herbicides, and best suited to site saturation and inundation conditions. *In Missouri, reference the Wildlife and Pollinator*



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Plantings Job Sheet (MO645), and the Native Pollinators (JS-MO634Pollinator) Job Sheet.

- o Selecting planting techniques and timing appropriate for the site and soil conditions.
- o Planning the use of additional erosion control, as needed for the site.
- o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation. *In Missouri, document practice specifications completed using the Wildlife and Pollinator Plantings Job Sheet (MO645) and Seeding Plan created using the Missouri Wildlife Seed Calculator.*
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify the vegetation was established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests, has had limited haying, and that grazing is being excluded, if established less than two years.



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E390136Z- Increase riparian herbaceous
cover width to enhance wildlife habitat

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E391118Z

Increase riparian forest buffer width for nutrient reduction

Conservation Practice 391: Riparian Forest Buffer

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

PRACTICE LIFE SPAN: 15 Years

Enhancement Description

Where an existing forested riparian area is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of nutrient removal from surface and subsurface flows.

Criteria

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer-width requirement, whichever is greater. Maximum enhancement buffer width may be increased up to the greater of 180 feet or the State-allowed maximum width.
- To the extent possible, the buffer area and extended buffer will be shaped and vegetated to increase overland flow interception.
- Excessive sheet-rill and concentrated-flow erosion will be controlled in the areas immediately adjacent and up-gradient of the buffer site. Overland flow through the riparian area will be maintained as sheet flow.



CONSERVATION STEWARDSHIP PROGRAM

- Existing, functional underground drains through the riparian area will be plugged, removed or replaced with perforated pipe/end plugs or water control structures.
- Dominant vegetation will consist of existing, naturally regenerated, or seeded/planted trees and shrubs suited to the soil and hydrology of the site and the intended purpose of nutrient reduction.
- Use tree and shrub species that are native and non-invasive. Substitution with improved and locally accepted cultivars or purpose-specific species is allowed. For plantings and seeding, only viable, high-quality and adapted plant materials will be used.
- Favor tree and shrub species that have multiple values such as those suited for timber, nuts, fruit, florals, browse, nesting, and aesthetics.
- Periodic removal of some forest products such as high value trees, medicinal herbs, nuts, and fruits is permitted provided the buffer area is not compromised by the loss of vegetation or harvesting disturbance.
- Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species.
- Harmful plant and animal pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.
- Livestock shall be controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock is present, follow a Prescribed Grazing Plan (CPS 528) and defer grazing for a minimum of two years.
- Design the expanded buffer enhancement for an expected life of at least 15 years.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, prepare the planned buffer area according to the planting plan NRCS has developed with you. Refer to NRCS Conservation Practice Standard (CPS) Riparian Forest Buffer (Code 391). (NRCS will provide technical assistance *including job sheet JS-MO490*, as needed.)
- o Prior to implementation, select planting date, method, and density/spacing appropriate for the site and soil conditions *following NRCS CPS Tree/Shrub Establishment (Code 612)*. (NRCS will provide technical assistance *including job sheet JS-MO612*, as needed.)

Planting Date	Refer to JS-MO612
Planting Method	Refer to JS-MO612
Density and spacing	Refer to JS-MO612

- o Prior to implementation, work closely with NRCS to select plant species that are adapted to your specific site and meet the goals of this enhancement.

Species	Vegetative or Rootstock	Size	Protection (tubes, mats, nets)
Refer to JS-MO612			
Refer to JS-MO612			
Refer to JS-MO612			
Refer to JS-MO612			

- o During implementation and before planting, grade the site, as needed, to eliminate concentrated flow through the buffer including water coming from uphill of the buffer.
- o During implementation and before planting, replace underground tile drains that pass through the buffer with rigid, non-perforated pipe or install a water control device that allows for overflow management.
- o During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.



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- o During implementation, conduct planting of selected species according to dates, methods, spacing and other requirements listed in the planting plan.
- o During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.
- o After Implementation, control harmful pests and vegetation and in a manner that limits effects to pollinators. Inspect and maintain tubes and protection measures regularly.
- o After implementation, livestock and wildlife may need be controlled or excluded to achieve the buffer's water quality improvement purpose. If livestock are present, follow a Prescribed Grazing Plan (Code 528) and defer grazing for a minimum of two years. *Grazing should only be permitted for the purpose of benefiting the function of the buffer, otherwise livestock should be excluded from the buffer.* Wildlife may need to be controlled during establishment of vegetative treatments. Temporary and local population control methods should be used with caution and within state and local regulations.

NRCS will:

- o Prior to implementation, verify the enhancement is planned for cropland.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) to show how it relates to this enhancement. Prior to implementation, verify no plants on the Federal or state noxious weeds list are included in the planting list.
- o Prior to implementation, NRCS will provide technical assistance on:
 - o Preparing a site preparation and planting plan that meets NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) and lists the species, vegetation type, density, protection measures, and planting dates. *Additional information may be included in the following jobsheets: JS-MO490 (Tree and Shrub Site Preparation) and JS-MO612 (Tree and Shrub Establishment)*
- o *Selecting planting techniques and timing appropriate for the site and soil conditions.*



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- ☐ Assessing impacts of drainage removal/plugging on adjacent land units and uses.
- ☐ Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, review any planned changes to ensure they meet the enhancement criteria.
- ☐ During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications provided to the participant.
- ☐ After implementation, verify that any underground drains through the riparian area, if they exist, were plugged, removed or replaced with perforated pipe/end plugs or structures for flow control.
- ☐ After implementation, verify the vegetation was established and any protections required are being maintained according to the specifications provided to the participant.
- ☐ After implementation verify livestock are controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock are present, verify a Prescribed Grazing Plan (Code 528) is being followed and that grazing is being deferred for a minimum of two years. *Grazing should only be permitted for the purpose of benefiting the function of the buffer, otherwise livestock should be excluded from the buffer.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E391118Z-Increase riparian forest buffer
width for nutrient reduction

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E391126Z

Increase riparian forest buffer width to reduce sediment loading

Conservation Practice 391: Riparian Forest Buffer

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

PRACTICE LIFE SPAN: 15 Years

Enhancement Description

Where an existing forested riparian area is located along a river, stream, pond, lake, or other waterbody, increase the width of the buffer in order to allow a greater percentage of sediment removal from surface flows.

Criteria

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer-width requirement, whichever is greater. Maximum enhancement buffer width may be increased up to the greater of 180 feet or the State-allowed maximum width.
- To the extent possible, the buffer area and extended buffer will be shaped and vegetated to increase overland flow interception.

E391126Z-Increase riparian forest buffer width to reduce sediment loading	March 2018 – Missouri Page 1



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- Excessive sheet-rill and concentrated-flow erosion will be controlled in the areas immediately adjacent and up-gradient of the buffer site. Overland flow through the riparian area will be maintained as sheet flow.
- Dominant vegetation will consist of existing, naturally regenerated, or seeded/planted trees and shrubs suited to the soil and hydrology of the site and the intended purpose of sediment removal.
- Use tree and shrub species that are native and non-invasive. Substitution with improved and locally accepted cultivars or purpose-specific species is allowed. For plantings and seeding, only viable, high-quality and adapted plant materials will be used.
- Favor tree and shrub species that have multiple values such as those suited for timber, nuts, fruit, florals, browse, nesting, and aesthetics.
- Periodic removal of some forest products such as high value trees, medicinal herbs, nuts, and fruits is permitted provided the buffer area is not compromised by the loss of vegetation or harvesting disturbance.
- Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species.
- Harmful plant and animal pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.
- Livestock shall be controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock is present, follow a Prescribed Grazing Plan (CPS 528) and defer grazing for a minimum of two years.
- Design the expanded buffer enhancement for an expected life of at least 15 years.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, prepare the planned buffer area according to the planting plan NRCS has developed with you. Refer to NRCS Conservation Practice Standard (CPS) Riparian Forest Buffer (Code 391). (NRCS will provide technical assistance *including job sheet JS-MO490*, as needed.)
- o Prior to implementation, select planting date, method, and density/spacing appropriate for the site and soil conditions *following NRCS CPS Tree/Shrub Establishment (Code 612)*. (NRCS will provide technical assistance *including job sheet JS-MO612*, as needed.)

Planting Date	<i>Refer to JS-MO612</i>
Planting Method	<i>Refer to JS-MO612</i>
Density and spacing	<i>Refer to JS-MO612</i>

- o Before implementation, work closely with NRCS to select plant species that are adapted to your specific site and meet the goals of this enhancement.

Species	Vegetative or Rootstock	Size	Protection (tubes, mats, nets)
<i>Refer to JS-MO612</i>			
<i>Refer to JS-MO612</i>			
<i>Refer to JS-MO612</i>			
<i>Refer to JS-MO612</i>			
<i>Refer to JS-MO612</i>			

- o During implementation and before planting, grade the site, as needed, to eliminate concentrated flow through the buffer including water coming from uphill of the buffer.
- o During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.
- o During implementation, conduct planting of selected species according to dates, methods, spacing and other requirements listed in the planting plan.



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- o During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.
- o After implementation, control harmful pests and vegetation and in a manner that limits effects to pollinators. Inspect and maintain any installed tubes and protection measures regularly.
- o After implementation, livestock and wildlife may need to be controlled or excluded to achieve the buffer's water quality improvement purpose. If livestock are present, follow a Prescribed Grazing Plan (Code 528) and defer grazing for a minimum of two years. *Grazing should only be permitted for the purpose of benefiting the function of the buffer, otherwise livestock should be excluded from the buffer.* Wildlife may need to be controlled during establishment of vegetative treatments. Temporary and local population control methods should be used with caution and within state and local regulations.

NRCS will:

- o Prior to implementation, verify the enhancement is planned for cropland.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) to show how it relates to this enhancement.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included in the planting list.
- o Prior to implementation, NRCS will provide technical assistance on:
 - o Preparing a site preparation and planting plan that meets NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) and lists the species, vegetation type, density, protection measures, and planting dates. *Additional information may be included in the following jobsheets: JS-MO490 (Tree and Shrub Site Preparation) and JS-MO612 (Tree and Shrub Establishment)*
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.
 - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes,



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appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

- o During implementation, review any planned changes to ensure they meet the enhancement criteria.
- o During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications provided to the participant.
- o After implementation, verify the vegetation was established and any protections required are being maintained according to specifications provided to the participant.
- o After implementation verify livestock are controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock are present, verify a Prescribed Grazing Plan (Code 528) is being followed and grazing is being deferred for a minimum of two years. *Grazing should only be permitted for the purpose of benefiting the function of the buffer, otherwise livestock should be excluded from the buffer.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E393118Z

Extend existing filter strip to reduce excess nutrients in surface water

Conservation Practice 393: Filter Strip

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Associated Ag Land

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Extend existing filter strips for water quality protection (reduce excess nutrients in surface water). Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.

Criteria

- Extend existing filter strip for water quality protection (reduce excess nutrients in surface water).
- Extend the existing buffer for a total of 60 feet or more to enhance water quality functions.



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- Overland flow entering the filter strip shall be uniform sheet flow. Concentrated flow shall be dispersed before it enters the filter strip.
- The maximum gradient along the leading edge of the filter strip shall not exceed one-half of the up and down hill slope percent, immediately upslope from the filter strip, up to a maximum of 5%.
- Filter strips shall not be used as a travel lane for equipment or livestock.
- The filter strip will be designed to have a 10-year life span, following the procedure in the Agronomy Technical Note No. 2 (Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment), based on the sediment delivery in RUSLE2 to the upper edge of the filter strip and ratio of the filter strip flow length to the length of the flow path from the contributing area.
- The filter strip shall be located immediately downslope from the source area of contaminants.
- The drainage area above the filter strip shall have a slope of 1% or greater.
- The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible. State-listed noxious or invasive plants will not be established in the filter strip.
- The filter strip shall be established to permanent herbaceous vegetation. Species selected shall be:
 - o able to withstand partial burial from sediment deposition and
 - o tolerant of herbicides used on the area that contributes runoff to the filter strip.
- Species selected shall have stiff stems and a high stem density near the ground surface.
- Species selected for seeding or planting shall be suited to current site conditions and intended uses.
- Selected species will have the capacity to achieve adequate density and vigor within an appropriate period to stabilize the site sufficiently to permit suited uses with ordinary management activities.



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- Species, rates of seeding or planting, minimum quality of planting stock, such as pure live seed or stem caliper, and method of establishment shall be specified before application. Only viable, high quality seed or planting stock will be used.
- Site preparation and seeding or planting shall be done at a time and in a manner that best ensures survival and growth of the selected species. What constitutes successful establishment, e.g. minimum percent ground/canopy cover, percent survival, stand density, etc. shall be specified before application.
- Planting dates shall be scheduled during periods when soil moisture is adequate for germination and/or establishment. Seeding shall be timed so that tillage for adjacent crop does not damage the seeded filter strip.
- The minimum seeding and stem density shall be equivalent to a high quality grass hay seeding rate for the climate area or the density of vegetation selected in RUSLE2 to determine trapping efficiency, whichever is the higher seeding rate.



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Documentation and Implementation Requirements

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. *Refer to Missouri NRCS Conservation Practice Standard Filter Strip (Code 393) and Critical Area Planting (Code 342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723). NRCS will provide technical assistance, as needed. Total planned amount of filter strip extension = _____ feet. Total planned area of extension = _____ square feet.*
- Prior to implementation, select at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. NRCS will provide technical assistance, as needed.

Species	Seeding Rate (lbs/ac pure live seed)	Note specific species characteristic(s)

- Prior to implementation, select planting technique and timing appropriate for the site and soil conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Method	

- During implementation, install and maintain erosion control measures as needed for the site. NRCS will provide technical assistance, as needed.
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.



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- o During implementation, protect the planting from plant and animal pests and fire.
- o After implementation, maintain and protect the planting from plant and animal pests and fire.
- o After implementation, verify the total amount of filter strip implemented. *Total implemented amount of filter strip extension = _____ feet. Total implemented area of filter strip extension = _____ square feet.*
- o *After implementation, provide NRCS with actual items completed such as site preparation, species planted, planting rate and depth, dates planted, planting and method. Include all seed tags with this documentation.*

NRCS will:

- o Prior to implementation, verify the enhancement is planned for cropland.
- o Prior to implementation, provide and explain *Missouri NRCS Conservation Practice Filter Strip (Code 393) and Critical Area Planting (Code 342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723)* as it relates to implementing this enhancement.
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for filter strip establishment. *Total planned amount of filter strip extension = _____ feet and total area of extension = _____ square feet.*
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation meeting *Missouri NRCS Conservation Practice Standard Filter Strip (Code 393) and Critical Area Planting (Code 342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723).*
 - o Selecting the wildlife friendly grasses and/or perennial forbs best suited to site conditions.
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes,



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- appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
 - o After implementation, verify the vegetation was established to specifications developed for the site.
 - o After implementation, verify the planting is protected from pests and fire.
 - o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
 - o After implementation, verify the total amount of filter strip implemented. Total implemented amount of filter strip extension = _____ feet and total area of filter strip extension = _____ square feet.
 - o After implementation, complete the Filter Strip Implementation Requirements form based on documentation provided and attach all RUSLE2 runs showing the filter strip was designed following the procedure in the Agronomy Technical Note No. 2 - Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E393122Z

Extend filter strip to reduce excess pathogens and chemicals in surface water

Conservation Practice 393: Filter Strip

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Associated Agricultural Land

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Extend existing filter strips for water quality protection (reduce excess pathogens and chemicals from manure, bio-solids or compost applications in surface waters). Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.

Criteria

- Extend existing filter strips for water quality protection (reduce excess pathogens and chemicals from manure, bio-solids or compost applications in surface waters).



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- Extend the existing buffer for a total of 60 feet or more to enhance water quality functions.
- Overland flow entering the filter strip shall be uniform sheet flow. Concentrated flow shall be dispersed before it enters the filter strip.
- The maximum gradient along the leading edge of the filter strip shall not exceed one-half of the up and down hill slope percent, immediately upslope from the filter strip, up to a maximum of 5%.
- Filter strips shall not be used as a travel lane for equipment or livestock.
- The filter strip will be designed to have a 10-year life span, following the procedure in the Agronomy Technical Note No. 2 (Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment), based on the sediment delivery in RUSLE2 to the upper edge of the filter strip and ratio of the filter strip flow length to the length of the flow path from the contributing area.
- The filter strip shall be located immediately downslope from the source area of contaminants.
- The drainage area above the filter strip shall have a slope of 1% or greater.
- The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible. State-listed noxious or invasive plants will not be established in the filter strip.
- The filter strip shall be established to permanent herbaceous vegetation. Species selected shall be:
 - o able to withstand partial burial from sediment deposition and



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o tolerant of herbicides used on the area that contributes runoff to the filter strip.

- Species selected shall have stiff stems and a high stem density near the ground surface.
- Species selected for seeding or planting shall be suited to current site conditions and intended uses.
- Selected species will have the capacity to achieve adequate density and vigor within an appropriate period to stabilize the site sufficiently to permit suited uses with ordinary management activities.
- Species, rates of seeding or planting, minimum quality of planting stock, such as PLS or stem caliper, and method of establishment shall be specified before application. Only viable, high quality seed or planting stock will be used.
- Site preparation and seeding or planting shall be done at a time and in a manner that best ensures survival and growth of the selected species. What constitutes successful establishment, e.g. minimum percent ground/canopy cover, percent survival, stand density, etc. shall be specified before application.
- Planting dates shall be scheduled during periods when soil moisture is adequate for germination and/or establishment. Seeding shall be timed so that tillage for adjacent crop does not damage the seeded filter strip.
- The minimum seeding and stem density shall be equivalent to a high quality grass hay seeding rate for the climate area or the density of vegetation selected in RUSLE2 to determine trapping efficiency, whichever is the higher seeding rate.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and implementation Requirements

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. Refer to *Missouri NRCS Conservation Practice Standard Filter Strip (Code 393) and Critical Area Planting (Code 342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723)*. NRCS will provide technical assistance, as needed. Total planned amount of filter strip extension = _____ feet. Total planned area of extension = _____ square feet.
- Prior to implementation, select at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. NRCS will provide technical assistance, as needed.

Species	Seeding Rate (lb/ac pure live seed)	Note specific species characteristic(s)

- Prior to implementation, select planting technique and timing appropriate for the site and soil conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Technique	

- During implementation, install and maintain erosion control measures as needed for the site. NRCS will provide technical assistance, as needed.
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.



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- o During implementation, protect the planting from plant and animal pests and fire. After implementation, maintain and protect the planting from plant and animal pests and fire.
- o After implementation, verify the total amount of filter strip implemented. Total implemented amount of filter strip extension = _____ feet. *Total implemented area of filter strip extension = _____ square feet.*
- o *After implementation, provide NRCS with actual items completed such as site preparation, species planted, planting rate and depth, dates planted, planting and method. Include all seed tags with this documentation.*

NRCS will:

- o Prior to implementation, verify the enhancement is planned for cropland.
- o Prior to implementation, provide and explain *Missouri NRCS Conservation Practice Filter Strip (Code 393) and Critical Area Planting (Code 342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723)* as it relates to implementing this enhancement.
- o Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for filter strip establishment. Total planned amount of filter strip extension = _____ feet and total area of extension = _____ square feet.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation meeting *Missouri NRCS Conservation Practice Standard Filter Strip (Code 393) and Critical Area Planting (Code 342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723).*
 - o Selecting the wildlife friendly grasses and/or perennial forbs best suited to site conditions.
 - o Selecting planting techniques and timing appropriate for the site and soil conditions.
 - o Planning the use of additional erosion control, as needed for the site.



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- o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the vegetation was established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify the total amount of filter strip implemented. Total implemented amount of filter strip extension = _____ feet and total area of filter strip extension = _____ square feet.
- o *After implementation, complete the Filter Strip Implementation Requirements form based on documentation provided and attach all RUSLE2 runs showing the filter strip was designed following the procedure in the Agronomy Technical Note No. 2 - Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment.*



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E393126Z

Extend existing filter strip to reduce excess sediment in surface water

Conservation Practice 393: Filter Strip

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Associated Agricultural Land

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Extend existing filter strips for water quality protection (reduce excess sediment in surface waters). Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.

Criteria

- Extend existing filter strips for water quality protection (reduce excess sediment in surface waters).
- Extend the existing buffer for a total of 60 feet or more to enhance water quality functions.



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- Overland flow entering the filter strip shall be uniform sheet flow. Concentrated flow shall be dispersed before it enters the filter strip.
- The maximum gradient along the leading edge of the filter strip shall not exceed one-half of the up and down hill slope percent, immediately upslope from the filter strip, up to a maximum of 5%.
- Filter strips shall not be used as a travel lane for equipment or livestock.
- The filter strip will be designed to have a 10-year life span, following the procedure in the Agronomy Technical Note No. 2 (Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment), based on the sediment delivery in RUSLE2 to the upper edge of the filter strip and ratio of the filter strip flow length to the length of the flow path from the contributing area.
- The filter strip shall be located immediately downslope from the source area of contaminants.
- The drainage area above the filter strip shall have a slope of 1% or greater.
- The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible. State-listed noxious or invasive plants will not be established in the filter strip.
- The filter strip shall be established to permanent herbaceous vegetation. Species selected shall be:
 - o able to withstand partial burial from sediment deposition and
 - o tolerant of herbicides used on the area that contributes runoff to the filter strip.



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- Species selected shall have stiff stems and a high stem density near the ground surface.
- Species selected for seeding or planting shall be suited to current site conditions and intended uses.
- Selected species will have the capacity to achieve adequate density and vigor within an appropriate period to stabilize the site sufficiently to permit suited uses with ordinary management activities.
- Species, rates of seeding or planting, minimum quality of planting stock, such as pure live seed or stem caliper, and method of establishment shall be specified before application. Only viable, high quality seed or planting stock will be used.
- Site preparation and seeding or planting shall be done at a time and in a manner that best ensures survival and growth of the selected species. What constitutes successful establishment, e.g. minimum percent ground/canopy cover, percent survival, stand density, etc. shall be specified before application.
- Planting dates shall be scheduled during periods when soil moisture is adequate for germination and/or establishment. Seeding shall be timed so that tillage for adjacent crop does not damage the seeded filter strip.
- The minimum seeding and stem density shall be equivalent to a high quality grass hay seeding rate for the climate area or the density of vegetation selected in RUSLE2 to determine trapping efficiency, whichever is the higher seeding rate.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, prepare the planned acres for vegetation establishment. Refer to *Missouri NRCS Conservation Practice Standard Filter Strip (Code 393)* and *Critical Area Planting (Code 342)* and *Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723)*. NRCS will provide technical assistance, as needed. Total planned amount of filter strip extension = _____ feet. Total planned area of extension = _____ square feet.
- o Prior to implementation, select at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. NRCS will provide technical assistance, as needed.

Species	Seeding Rate (lbs/ac pure live seed)	Note specific species characteristic(s)

- o Prior to implementation, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Method	

- o During implementation, install and maintain erosion control measures as needed for the site. NRCS will provide technical assistance, as needed.
- o During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- o During implementation, protect the planting from plant and animal pests and fire.



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- After implementation, maintain and protect the planting from plant and animal pests and fire.
- After implementation, verify the total amount of filter strip implemented. Total implemented amount of filter strip extension = _____ feet. *Total implemented area of filter strip extension = _____ square feet.*
- After implementation, provide NRCS with actual items completed such as site preparation, species planted, planting rate and depth, dates planted, planting and method. Include all seed tags with this documentation.

NRCS will:

- Prior to implementation, verify the enhancement is planned for cropland.
- Prior to implementation, provide and explain *Missouri NRCS Conservation Practice Filter Strip (Code 393) and Critical Area Planting (Code 342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723)* as it relates to implementing this enhancement.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for filter strip establishment. Total planned amount of filter strip extension = _____ feet and total area of extension = _____ square feet.
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation meeting *Missouri NRCS Conservation Practice Standard Filter Strip (Code 393) and Critical Area Planting (Code 342) and Conservation Specification Vegetation Establishment, Herbaceous Seeding (Code 723)*.
 - Selecting the wildlife friendly grasses and/or perennial forbs best suited to site conditions.
 - Selecting planting techniques and timing appropriate for the site and soil conditions.
 - Planning the use of additional erosion control, as needed for the site.
 - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.



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- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the vegetation was established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify the total amount of filter strip implemented. Total implemented amount of filter strip extension = _____ feet and total area of filter strip extension = _____ square feet.
- o *After implementation, complete the Filter Strip Implementation Requirements form based on documentation provided and attach all RUSLE2 runs showing the filter strip was designed following the procedure in the Agronomy Technical Note No. 2 - Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment.*

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E449114Z6

Automated intermittent flood irrigation of rice fields–Year 2-5

Conservation Practice 449: Irrigation Water Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Insufficient Water

PRACTICE LIFE SPAN: 1 year

Enhancement Description

Rice fields are drained and allowed to “dry down” to a saturated soil condition prior to reflooding the field. System is installed in year 1 with Scenario E449144Z8 and this scenario used in years 2-5.

Criteria

- Deliver water to individual rice paddies through a “multi-inlet” or “side-inlet” distribution system, or the field has been graded flat.
- Prepare and plant the fields using typical agricultural practices.
- If necessary to germinate seed, flood the field, then allow the field to dry down and plants to reach the fifth leaf (first tiller) stage before establishing full flood.
- Flood the field based on typical triggers such as plant growth stage, presence of weeds, and soil moisture.
- Implement a cyclical drying-wetting regime throughout the growing season as follows:
 - Terminate irrigation and allow the field to “dry down” to a saturated soil condition, using water level sensors to monitor “dry down” cycle.
 - For sloping fields, the upper 10% of each paddy should reach saturated soil condition prior to the next flood cycle.
 - After dry-down, resume irrigation flooding to typical levels.



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- o Repeat the cycle throughout the growing season.
 - o Near the end of the season, terminate irrigation based on plant growth stage as recommended by local Land Grant University personnel and allow the field to “dry down” prior to harvest.
- Comply with the requirements of the NRCS Conservation Practice Standard Irrigation Water Management (Code 449) and your site specific Irrigation Water Management Plan.



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Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, acquire an irrigation water management plan meeting NRCS Conservation Practice Standard Irrigation Water Management (Code 449) requirements.
- o During implementation, record irrigation data such as location, date, duration, and flow rate of all irrigation operations, rainfall, evapotranspiration, and water level data.
- o During implementation, utilize dated digital photography to document “dry down” conditions. Each photo should indicate the location and field where the photo was taken.
- o After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - o Irrigation water management plan and records kept, including data for water level sensors.
 - o Dated digital photography used to document “dry down” conditions.

NRCS will:

- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) as it relates to implementing this enhancement during Implementation, provide additional technical assistance to the participant as requested.
- o After implementation, verify implementation of the irrigation water management plan, by reviewing records kept during enhancement implementation.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E472118Z

Manage livestock access to streams, ditches, and other waterbodies to reduce nutrients in surface water

Conservation Practice 472: Access Control

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Installation of structures and implementation of grazing management actions that restrict livestock access to streams, ditches, and other waterbodies in order to reduce nutrient loading to surface waters.

Criteria

- Manage livestock access to provide positive benefits to surface water quality, especially due to better manure distribution and reduction of nutrient input into surface waters.
- Use-regulating activities (e.g., gates, fences, and other barriers) shall be implemented to eliminate livestock access to streams to reduce nutrients in surface water.



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- Limit stream access to hardened stream crossings or water access points. Preferably, install alternative water sources away from water courses and waterbodies.
- Implement riparian area grazing management strategies, including herding and seasonal exclusion with a rotational grazing system.
- Activities will complement the application schedule and life span of other practices specified in the conservation plan.
- Livestock activity will be monitored and regulated, and management plans will specify the intent, intensity, amounts, and timing of livestock exclusion access/exclusion from the target water course or waterbody. Activities may involve temporary to permanent livestock exclusion.
- Placement, location, dimensions and materials (e.g., gates), and frequency of use (e.g., continuous) shall be described for each activity including monitoring frequency.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, obtain a written grazing plan with guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand from a qualified professional. For riparian grazing management strategies, prior to implementation, a written narrative describing planned season of livestock grazing use must be included in grazing plan.
- During implementation, keep pasture/herd in/out records.
- After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
 - Written grazing plan.
 - *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - *A map identifying streams, ditches, water bodies, and riparian/floodplain areas of offered acres.*
 - Pasture/herd in/out records.
 - *Include dates, forage heights and animal numbers.*
 - Map showing locations of installed structures.

NRCS will:

- *Prior to implementation, provide technical assistance in the development of a prescribed grazing plan that restricts livestock access to streams, ditches, and other waterbodies. This plan also provides grazing management strategies for the riparian/floodplain areas.*



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- o *Prior to implementation, as needed, provide additional technical assistance to the participant as requested to help identify areas to be treated and provide maps of before implementation and after implementation.*
- o *Prior to implementation, provide technical assistance in the planning and design of structures to facilitate the control of livestock.*
- o After implementation, complete forage utilization job sheet for NRCS Conservation Practice Standard Prescribed Grazing (Code 528).
- o After implementation, verify implementation of the written grazing plan, by reviewing plan and pasture/herd in/out records kept during enhancement implementation.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E472122Z

Manage livestock access to streams, ditches, and other waterbodies to reduce pathogens in surface water

Conservation Practice 472: Access Control

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Installation of structures and implementation of grazing management actions that restrict livestock access to streams, ditches, and other waterbodies in order to reduce the introduction of pathogens to surface waters.

Criteria

- Manage livestock access to provide positive benefits to surface water quality, especially due to better manure distribution and reduction of pathogen input into surface waters.
- Use-regulating activities (e.g., gates, fences, and other barriers) shall be implemented to eliminate livestock access to streams to reduce pathogens in surface water.



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- Limit stream access to hardened stream crossings or water access points. Preferably, install alternative water sources away from water courses and waterbodies.
- Implement riparian area grazing management strategies, including herding and seasonal exclusion with a rotational grazing system.
- Activities will complement the application schedule and life span of other practices specified in the conservation plan.
- Livestock activity will be monitored and regulated, and management plans will specify the intent, intensity, amounts, and timing of livestock exclusion access/exclusion from the target water course or waterbody. Activities may involve temporary to permanent livestock exclusion.
- Placement, location, dimensions and materials (e.g., gates), and frequency of use (e.g., continuous) shall be described for each activity including monitoring frequency.



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Documentation and Implementation Requirements

Participant will:

- Prior to implementation, obtain a written grazing plan with guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand from a qualified professional.
- For riparian grazing management strategies, prior to implementation a written narrative describing planned season of livestock grazing use must be included in grazing plan.
- During implementation, keep pasture/herd in/out records.
- After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
 - Written grazing plan.
 - *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - *A map identifying streams, ditches, water bodies, and riparian/floodplain areas of offered acres.*
 - Pasture/herd in/out records.
 - *Include dates, forage heights and animal number.*
 - Plan map showing locations of installed structures.

NRCS will:

- *Prior to implementation, provide technical assistance in the development of a prescribed grazing plan that restricts livestock access to streams, ditches, and other waterbodies. This plan also provides grazing management strategies for the riparian/floodplain areas.*
- *Prior to implementation, as needed, provide additional technical assistance to the participant as requested to help identify areas to be treated and provide maps of before implementation and after implementation.*
- *Prior to implementation, provide technical assistance in the planning and design of structures to facilitate the control of livestock.*



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- o After implementation, complete forage utilization job sheet for NRCS Conservation Practice Standard Prescribed Grazing (Code 528).
- o After implementation, verify implementation of the written grazing plan, by reviewing plan and pasture/herd in/out records kept during enhancement implementation.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E484106Z

Mulching to improve soil health

Conservation Practice 484: Mulching

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

PRACTICE LIFE SPAN: 1 year

Enhancement Description

Implement a crop rotation which utilizes mulch and addresses all four principle components of soil health: increases diversity of the cropping system; maintains residue throughout the year; keeps a living root; and minimizes soil chemical, physical and biological disturbance. Plant-based mulching materials will be applied at least once during the rotation. The rotation will include at least 4 different crops and/or cover crops grown in a sequence that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). The current NRCS wind and water erosion prediction technologies must be used to document the rotation and SCI calculations.

Criteria

- Use plant-based mulching materials of suitable quantity and quality to add organic matter, provide food and shelter for soil biota, and protect the soil surface from raindrop impact and crusting, while allowing for adequate soil aeration.



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- Apply plant-based mulching materials with a carbon to nitrogen ratio (C:N) less than 30 to 1 to reduce soil nitrogen immobilization by soil biota. (typical ratio examples: hairy vetch cover crop 11:1, fresh grass clippings 17:1, mature alfalfa hay 25:1, corn stalks 60:1, wheat straw 80:1, and pine needles 80-110:1)
- Do not apply mulch with C:N less than 20:1 to an area of designed flow in watercourses.
- The crop rotation includes at least 4 crops and/or cover crops grown in a sequence.
- An evaluation of the system using the current approved soil conditioning index (SCI) procedure results in zero or higher.
- Use mulch of sufficient ground cover, and suitable thickness and texture to provide habitat for ground beetles, spiders, and other predators of weed seeds and crop pests.
- Select crops to be mulched, mulching materials, and rates of application that do not contribute to pest problems.
- For all organic or transitioning to organic operations, follow all National Organic Program (NOP) rules.



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Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide NRCS with the planned crop rotation and tillage operation(s) used for each crop. The crop rotation must include at least 4 crops and/or cover crops grown in a sequence.

Field	Acres	Planned Crops (in sequence)	Length of Crop Rotation (years)

Field	Crop	Field Operation	Timing of Field Operation (month/year)

- o Prior to implementation, provide NRCS with the planned mulching information. Select crops to be mulched, mulching materials, and rates of application that do not contribute to pest problems.



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Field	Crop	Mulching Material	Planned Rate of application (pounds/acre)	Planned Application Date

- o During implementation, notify NRCS of any planned changes in the cropping system, crop management or mulching to verify the planned system meets the enhancement criteria.
- o During implementation, use mulch of sufficient ground cover, and suitable thickness and texture to provide habitat for ground beetles, spiders, and other predators of weed seeds and crop pests.
- o After implementation, provide NRCS with the applied mulching information.

Field	Crop	Mulching Material	Actual Rate of application (pounds/acre)	Actual Application Date

- o After implementation, if changes were made to crop rotation or tillage operation(s), complete the tables above to document the changes.



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NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, verify that the crop rotation includes at least 4 crops and/or cover crops grown in a sequence.
- Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value using current NRCS wind and water erosion prediction technologies.

Management SCI Value = _____

- During implementation, evaluate any planned changes in the cropping system, crop management or mulching to verify the planned system meets the enhancement criteria. After implementation, if changes were made from the planned system, use information provided from the participant to calculate SCI value to document that the applied system met the enhancement criteria.

Management SCI Value = _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E511137Z1

Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape

Conservation Practice 511: Forage Harvest Management

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape. (**For species list see State Wildlife Action Plan**). Conservation measures include timing of harvest, idling land during the nesting or fawning period, and applying harvest techniques that reduce mortality to wildlife.

Criteria

- Forage will be harvested at a frequency and height that optimizes the desired forage stand, plant community, and stand life. Follow State Cooperative Extension Service (CES) recommendations for forage harvest based on stage of maturity, moisture content, length of cut, stubble height and harvest interval. The following criteria must be met:
 - Harvest forage at the stage of maturity that provides the desired quality and quantity without compromising plant vigor and stand longevity.



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- Harvest silage/haylage crops within the optimum moisture range for the type of storage method(s) or structure(s) being utilized. CES recommendations must be followed for optimum moisture content and levels as well as methods and techniques to monitor and/or determine moisture content and levels. Avoid fermentation and seepage losses of digestible dry matter from direct cut hay crop silage (moisture content >70%) by treatment with chemical preservatives or add dry feedstuffs. For optimal dry hay quality, rake hay at 30 to 40 percent moisture and ted or invert swaths when moisture is above 40 percent. To preserve forage quality and quantity, bale field cured hay at 15 – 20 percent moisture and bale force air-dried hay and 20 – 35 percent moisture.
- o When harvested for ensilage forage will be chopped to a size appropriate for type of storage structure used and optimal effective fiber. The length of chop selected will allow adequate packing to produce the anaerobic conditions necessary to ensure the proper ensiling process. A shorter chop length on very dry silage may help to ensure good packing and adequate silage density.
- o Cut forage plants at a height that will promote the vigor and health of the desired species. Cutting heights will provide adequate residual leaf area; adequate numbers of terminal, basal or auxiliary tillers or buds; insulation from extreme heat or cold; and/or unsevered stem bases that store food reserves needed for full, vigorous recovery. Follow CES recommendations for proper stubble heights to avoid winterkill of forage species in cold climates.
- o Forage shall not contain contaminants that can cause illness or death to the animal being fed or rejection of the offered forage. Check CES contaminant notices, cautions, and recommendations for the specific harvest site location and area.
- o To provide suitable habitat for desired wildlife species <For species list see State Wildlife Action Plan> appropriate harvest schedule(s), cover patterns, and minimum



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plant heights to provide suitable habitat for the desired specie(s) should be implemented and maintained.

- o Time harvests to benefit the desired wildlife species by following state guidelines.
- o Producer will apply and maintain at least two of the following management actions specifically for improving or protecting grassland functions for the state identified targeted wildlife species:
 - Do not cut hay on at least 1/3 of the hay acres each year. Idle strips or blocks must be at least 30 feet wide.
 - For at least 1/3 of the hay acreage, hay cutting must be either before and/or after the primary nesting or fawning seasons based on state established dates for the targeted species.
 - Increase forage heights after mowing to state specified minimum heights for the targeted species on all hayed acres.
- o For all harvest activities that will be conducted during the nesting/fawning season the producer will implement at least two of the following to flush wildlife from during the harvest operation:
 - Attach a flush bar on the mower/harvest equipment.
 - Conduct all harvest/mowing during daylight hours.
 - The harvest pattern will either:
 - Begin on one end of the field and work back and forth across the field, or
 - Begin in the center of the field and work outward.



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Documentation and Implementation Requirements

Participant will:

- Prior to implementation, develop a map delineating the fields selected for improving wildlife habitat and enrolled in the enhancement.
- Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat. Plan must meet NRCS Conservation Practice Standard Forage Harvest Management (CPS 511) and the criteria for this enhancement. Coordinate the plan with NRCS Conservation Practice Standard Upland Wildlife Habitat Management (645), as applicable. Plan must include at a minimum for the forage harvest operations:
 - Goals, objectives, specific purpose (improve wildlife habitat values)
 - At least two of the management actions specifically for improving or protecting grassland functions for the state identified targeted wildlife species. Wildlife species of concern for this enhancement include northern bobwhite quail, greater prairie-chicken, or other grassland-dependent birds.
 - For all harvest activities that will be conducted during the nesting/fawning season (*May 1 – July 15*) the producer will implement at least two actions to flush wildlife from during the harvest operation.
 - *Apply and maintain at least **two** of the following management actions:*
 1. *Do not cut hay on at least 1/3 of the hay acres each year. Idle strips or blocks must be at least 30 feet wide.*
 2. *For at least 1/3 of the hay acreage, hay cutting must be either before and/or after the primary nesting or fawning seasons from May 1 through July 15.*
 3. *Increase forage heights after mowing by limiting cutting heights to not less than 4 inches for cool season species and not less than 6 inches for warm season species.*



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- *For all harvest activities that will be conducted during the nesting/fawning season from May 1 through July 15, implement at least two of the following to flush wildlife during the harvest operation:*
 1. *Attach a flush bar on the mower/harvest equipment. Supply a photo.*
 2. *Conduct all harvest/mowing during daylight hours.*
 3. *Follow either harvest pattern below: Supply photo of pattern.*
 - *Begin in the center of the field and work outward, or*
 - *Begin on one end of the field and work back and forth across the field.*
- Forage species to be harvested ○ For each dominant forage species to be harvested provide:
 - Method of harvest
 - Harvest timing (stage of maturity, optimal harvest moisture content, length of cut)
 - Stubble height to be left. *Cutting heights to not less than 4 inches for cool season species and not less than 6 inches for warm season species.*
 - Harvest interval (including late harvest, if applicable)
 - Contaminant avoidance recommendations
- Prior to implementation, ensure forage harvesting tool/machinery is capable of cutting the forage at the height required to provide suitable habitat for the desired wildlife species, without compromising plant vigor and stand longevity.
- Prior to implementation, review the State Wildlife Action Plan as it relates to implementing this enhancement and provide the following information:



CONSERVATION STEWARDSHIP PROGRAM

Wildlife Species of Concern	
Habitat Requirements, such as plant heights to provide suitable habitat	

o During implementation, keep the following documentation for each field:

Field	Forage species harvested	Pre-Harvest height (inches)	Post-Harvest height (inches)	Harvest Date

- o During implementation, time harvests to benefit the desired wildlife species.
- o During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- o During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- o After implementation, make documentation and photographs of forage cutting heights available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, verify a map has been developed delineating the fields which will have the enhancement implemented.



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, provide and explain NRCS Conservation Practice Standards Forage Harvest
- o Management (Code 511) and Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement, including applicable state specific job sheets. Prior to implementation, provide and explain the State Wildlife Action Plan as it relates to implementing this enhancement.
- o *NRCS will provide and explain Best Management Practices for species of concern chosen and how it relates to implementing this enhancement.*
- o Prior to implementation, NRCS will provide technical assistance, as needed to:
 - Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat.
 - Develop specifications detailing the wildlife protection measures and habitat improvement.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E511137Z1 - Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape

March 2018 - Missouri
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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E511137Z2

Forage harvest management that helps maintain or improve wildlife habitat (cover and shelter)

Conservation Practice 511: FORAGE HARVEST MANAGEMENT

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

The timely cutting and removal of forages from the field as hay, green-chop, or ensilage in such as way and time frames so as optimize both forage yield/quality and wildlife cover and shelter.

Criteria

- Wildlife species of concern for cover and shelter will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), and will be a species that would be present for at least part of their life cycle in the geographical/physiographic region.
- The state's WHEG will be completed by an NRCS or partner wildlife biologist. Cover and shelter habitat requirements for the wildlife species of concern will be specified on the WHEG. The total WHEG score after installation of this practice will be 0.60 or greater.



CONSERVATION STEWARDSHIP PROGRAM

- Forage will be harvested at a frequency and height that optimizes the desired forage stand, plant community, and stand life. Harvest forage at the stage of maturity that provides the desired quality and quantity to the degree possible while still providing suitable habitat for the desired wildlife species, and without compromising plant vigor and stand longevity.
- Harvest silage/haylage within the optimum moisture range for the type of storage utilized. Follow Cooperative Extension Service recommendations for moisture content. For optimal dry hay quality, rake at 30 to 40 percent moisture and ted or invert swaths when moisture is above 40 percent. Bale field cured hay at 15 to 20 percent moisture.
- Cut forage at a height that will promote the vigor and health of the desired forage species. Follow Cooperative Extension Service recommendations for proper stubble heights to avoid winterkill of forage species in cold climates.
- Appropriate harvest schedules, cover patterns, and minimum plant heights to provide suitable habitat for the specified wildlife species should be implemented and maintained. Time harvests to benefit the desired wildlife species by following state guidelines.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, ensure forage harvesting tool/machinery is capable of cutting the forage at the height required to provide suitable habitat for the desired wildlife species, without compromising plant vigor and stand longevity.
- o Prior to implementation, review the map delineating the hayfields selected for improving wildlife cover and shelter and enrolled in the enhancement.
- o Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity and also maintains or improves wildlife habitat. Plan must include specifications detailing the wildlife protection measures, such as time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods. Refer to NRCS Conservation Practice Standard Forage Harvest Management (Code 511).
- o During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- o During implementation, keep the following documentation for each field:

Field	Forage species selected for harvest	Harvest height (inches)	Harvest Date

- o After implementation, make documentation and photographs of forage cutting heights available for review by NRCS to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage *Harvest Management (Code 511)* as it relates to implementing this enhancement.
- o Prior to implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) as certified by an NRCS or partner wildlife biologist when applicable. Specific species targeted will be notated on the WHEG, and total score after implementation will equal 0.60 or greater. *Wildlife species of concern will be a grassland bird species such as northern bobwhite quail, greater prairie chicken, or other grassland-dependent birds that would be present for at least part of their life cycle. Use the Prairie and Grassland Community Model or Cropfield Community Model WHAG as appropriate.*

Wildlife Species of Concern	
Cover & Shelter Requirements	
Total WHEG Score Planned after implementation	

- o Prior to implementation, verify a map has been developed delineating the hayfields which will have the enhancement implemented.



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, NRCS will provide technical assistance, as needed to:
 - Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat. Plan must meet requirements of NRCS Conservation Practice Standard Forage Harvest Management (Code 511).
 - Develop specifications detailing the wildlife protection measures, such as time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods. *Critical nesting period for the state of MO is May 1 through July 15.*
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
 - After implementation, verify the planned forage harvest was completed to specifications developed for the fields delineated.
 - After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.
 - After implementation, if changes were made complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

Wildlife Species of Concern	
Cover & Shelter Requirements	



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CONSERVATION STEWARDSHIP PROGRAM

Total WHEG Score after implementation	

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E511137Z2 - Forage harvest management that helps maintain or improve wildlife habitat (cover and shelter)	March 2018 – Missouri Page 6



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E511139Z2

Forage harvest management that helps maintain wildlife habitat continuity (space)

Conservation Practice 511: FORAGE HARVEST MANAGEMENT

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 1 year

Enhancement Description

The timely cutting and removal of forages from the field as hay, green-chop, or ensilage in such as way and time frames so as to optimize both forage yield/quality and wildlife cover and shelter for habitat and/or continuity between otherwise disconnected habitats.

Criteria

- Wildlife species of concern for cover and shelter will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), and will be a species that would be present for at least part of their life cycle in the geographical/physiographic region.
- The state's WHEG will be completed by an NRCS or partner wildlife biologist. Cover and shelter habitat requirements for the wildlife species of concern will be specified



CONSERVATION STEWARDSHIP PROGRAM

on the WHEG. The total WHEG score after installation of this practice will be 0.60 or greater.

- Proposed wildlife habitat locations involve hayfields or other habitats connected by this enhancement.
- Forage will be harvested at a frequency and height that optimizes the desired forage stand, plant community, and stand life. Harvest forage at the stage of maturity that provides the desired quality and quantity to the degree possible while still providing suitable habitat for the desired wildlife species, and without compromising plant vigor and stand longevity.
- Harvest silage/haylage within the optimum moisture range for the type of storage utilized. Follow Cooperative Extension Service recommendations for moisture content. For optimal dry hay quality, rake at 30 to 40 percent moisture and ted or invert swaths when moisture is above 40 percent. Bale field cured hay at 15 to 20 percent moisture.
- Cut forage at a height that will promote the vigor and health of the desired forage species. Follow Cooperative Extension Service recommendations for proper stubble heights to avoid winterkill of forage species in cold climates.
- Appropriate harvest schedules, cover patterns, and minimum plant heights to provide suitable habitat for the specified wildlife species should be implemented and maintained. Time harvests to benefit the desired wildlife species by following state guidelines.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, ensure that forage harvesting tool/machinery is capable of cutting the forage at the height required to provide suitable habitat for the desired wildlife species, and without compromising plant vigor and stand longevity.
- Prior to implementation, review the map delineating the fields selected for improving wildlife cover and shelter and enrolled in the enhancement.
- Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity and also maintains or improves wildlife habitat. Plan must include specifications detailing the wildlife protection measures, such as time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods. Refer to NRCS Conservation Practice Standard Forage Harvest Management (Code 511).
- During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- During Implementation, keep the following documentation:

Field	Forage species selected for harvest	Harvest height (inches)	Harvest Date



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- After implementation, make documentation and photographs of forage cutting heights available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage *Harvest Management* (Code 511) as it relates to implementing this enhancement.
- Prior to implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) as certified by an NRCS or partner wildlife biologist when applicable. Specific species targeted will be notated on the WHEG, and total score after implementation will equal 0.60 or greater. *Wildlife species of concern will be a grassland bird species such as northern bobwhite quail, greater prairie chicken, or other grassland-dependent birds that would be present for at least part of their life cycle. Use the Prairie and Grassland Community Model or Cropfield Community Model WHAG as appropriate.*

Wildlife Species of Concern	
Cover & Shelter Requirements	
Total WHEG Score Planned after implementation	



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- o Prior to implementation, verify a map has been developed delineating the fields selected for improving wildlife habitat continuity (space) and delineating the connectivity corridors, which will have the enhancement implemented.
- o Prior to implementation, NRCS will provide technical assistance, as needed to:
 - o Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat. Plan must meet requirements of NRCS Conservation Practice Standard Forage Harvest Management (Code 511).
 - o Develop specifications detailing the wildlife protection measures, such as time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods. *Critical nesting period for the state of MO is May 1 through July 15.*
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned forage harvest was completed to specifications developed for the fields delineated. After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.
- o After implementation, if changes were made complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).



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Wildlife Species of Concern	
Cover & Shelter Requirements	
Total WHEG Score after implementation	

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512101Z1

Cropland conversion to grass-based agriculture to reduce water erosion

Conservation Practice 512 - Conservation Forage and Biomass Planting

APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial)

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Conversion of cropped land to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown.

Criteria

- The current NRCS wind and water erosion prediction technologies must be used to document the average annual soil erosion estimates (before and after) to show reduction in water erosion.
- Establish perennial grassland mixture on cropland. Mixtures shall be selected based on:
 - o Minimum of 50% grass species.
 - o Must contain at least one legume.
 - o Climatic conditions, such as annual precipitation and its distribution, growing season length, temperature extremes and the USDA Plant Hardiness Zone.



CONSERVATION STEWARDSHIP PROGRAM

- o Soil condition and landscape position attributes such as; pH, available water holding capacity, aspect, slope, drainage class, fertility level, salinity, depth, flooding and ponding, and levels of phytotoxic elements that may be present.
 - o Resistance to disease and insects common to the site or location.
 - o Intended use, level of management, realistic yield estimates, maturity stage, and compatibility with other species. Verify plant adaptation to the area prior to planting.
- Follow state specific recommendations for planting rates, methods and dates. Seeding rates will be calculated on a pure live seed (PLS) basis. Plant at a depth appropriate for the seed size or plant material, while assuring uniform contact with soil.
- Prepare the site to provide a medium that does not restrict plant emergence.
- Plant when soil moisture is adequate for germination and establishment.
- All seed and planting materials must meet state quality standards.
- Do not plant federal, state, or local noxious species.
- Apply all plant nutrients and/or soil amendments for establishment purposes according to a current soil test and developed specifications.
- When planting legumes, use pre-inoculated seed or inoculate with the proper viable strain of Rhizobia immediately before planting.
- Exclude livestock until the plants are well established.
- Ground cover and root mass need to be sufficient to protect the soil from water erosion.

Additional criteria when livestock are included in the system:

- Grazing plan must be developed to keep grazing period(s) sufficiently short to allow for plants to recover before re-grazing occurs.
- No more than 20% of the mixture may be alfalfa. Other legumes (especially nonbloating species) may be used in place of or in addition to alfalfa up to a maximum legume percentage of 50%.
- In areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.
- o Prior to implementation, select a perennial grassland mixture with an erosion control rating => Fair for establishment [see 'Erosion Control Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code 723) specification]. The mixture must contain at least one legume and contain a minimum of 50 percent grass species. If livestock are included in the system, no more than 20% of the mixture may be alfalfa. (NRCS will provide technical assistance, as needed.) If livestock are included in the system, in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates.

Species	Species type (grass, legume, forb)

- o Prior to implementation, select planting technique, seeding rates, and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Seeding rates	

- o During Implementation:



CONSERVATION STEWARDSHIP PROGRAM

- *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
- *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o *If livestock are included in the system, during implementation following establishment, a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods sufficiently short (7 days or less) to allow for plants to recover before re-grazing occurs.*
- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
 - *If livestock are included in the system, keep documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field.*
 - *If haying will be included in the system, keep documentation photographs of each field before and after haying (include dates and forage heights).*
- o After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.



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NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, use selected mixture and site information to calculate the before and after soil loss from water erosion using current NRCS wind and water erosion prediction technologies.
 - Soil erosion BEFORE ____t/ac/year and AFTER ____t/ac/year**
- o Prior to implementation, verify the enhancement is planned for cropland. Prior to implementation, verify the selected perennial grassland mixture includes a minimum of 50% grass species. Verify the mixture contains at least one legume. If livestock are included in the system, no more than 20% of the mixture may be alfalfa.
- o If livestock are included in the system, in areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
 - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o Prior to implementation, verify the enhancement is planned for cropland. During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o If livestock are included in the system, verify during implementation following establishment, that a grazing plan is developed to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.
- o If haying is included in the system, verify during implementation following establishment, a haying plan is developed that meets the Forage Harvest Management (Code 511) conservation practice standard.
- o After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.



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CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E512101Z1 - Cropland conversion to
grassbased agriculture to reduce water
erosion

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512101Z2

Forage and biomass planting for water erosion control to improve soil health

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide for reduced soil erosion, improving soil health.

Criteria

- Select perennial grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, and will provide the ground cover and root mass needed to be sufficiently protect the soil from wind and/or water erosion.
- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.



CONSERVATION STEWARDSHIP PROGRAM

- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Deep-rooted, perennial species will be selected that will contribute to maintaining or increasing underground carbon storage.
- New plantings will be monitored for water stress. Depending on the severity of drought, water stress may require reducing weeds, early harvest of any companion crops, irrigating when possible, or replanting failed stands. Plantings will be protected from grazing until an adequate stand is established and meets the species specific, local standard for beginning grazing.

Documentation Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.*
- o *See Vegetation Establishment Herbaceous Seeding (Code 723) specification for acceptable cultivars and rates.*
- o *Prior to implementation, select a deep-rooted perennial forage species with an erosion control rating greater than or equal to Fair [see 'Erosion Control Rating' column of Table 1 in the Vegetation Establishment, Herbaceous Seeding (Code 723) specification]. These species will also contribute to maintaining or increasing underground carbon storage. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed. See Vegetation Establishment Herbaceous Seeding (Code 723) specification for acceptable cultivars and rates.*

E512101Z2- Forage and biomass planting for water erosion control to improve soil health	March 2018 – Missouri Page 2



CONSERVATION STEWARDSHIP PROGRAM

Species	Forage category (grass, legume, forb)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. (NRCS will provide technical assistance, as needed.)

Planting date	
Planting method	
Planting rate	

- o *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
- o *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*



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- o If livestock are included in the system, prior to implementation a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.
- o If haying is included in the system, during implementation following establishment, a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard* must be developed.
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
 - If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (*dates and forage heights*) for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
 - If haying will be included in the system, keep documentation photographs of each field *before and after haying (include dates and forage heights)*.
- o After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o Prior to implementation, use selected mixture and site information to calculate the before and after soil loss from water erosion using current NRCS wind and water erosion prediction technologies.

Soil erosion BEFORE _____t/ac/year and AFTER _____t/ac/year



CONSERVATION STEWARDSHIP PROGRAM

- o As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
 - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
 - If haying is included in the system, verify during implementation following establishment, a haying plan is developed that meets the Forage Harvest Management (Code 511) conservation practice standard.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512106Z1

Cropland conversion to grass-based agriculture for soil organic matter improvement

Conservation Practice 512 - Forage and Biomass Planting

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Conversion of cropland to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown.

Criteria

- The current NRCS wind and water erosion prediction technologies must be used to document the average annual soil erosion estimates and soil conditioning index improvements.
- Establish perennial grassland mixture on cropland. Select deep-rooted perennial species that provide adequate kinds and amount of plant materials needed to increase soil organic matter. Mixtures shall be selected based on:
 - Minimum of 50% grass species.
 - Must contain at least one legume.



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- Climatic conditions, such as annual precipitation and its distribution, growing season length, temperature extremes and the USDA Plant Hardiness Zone.
- Soil condition and landscape position attributes such as; pH, available water holding capacity, aspect, slope, drainage class, fertility level, salinity, depth, flooding and ponding, and levels of phytotoxic elements that may be present.
- Resistance to disease and insects common to the site or location.
- Intended use, level of management, realistic yield estimates, maturity stage, and compatibility with other species. Verify plant adaptation to the area prior to planting.
- Follow state specific recommendations for planting rates, methods and dates. Seeding rates will be calculated on a pure live seed (PLS) basis. Plant at a depth appropriate for the seed size or plant material, while assuring uniform contact with soil.
- Prepare the site to provide a medium that does not restrict plant emergence.
- Plant when soil moisture is adequate for germination and establishment.
- All seed and planting materials must meet state quality standards.
- Do not plant federal, state, or local noxious species.
- Apply all plant nutrients and/or soil amendments for establishment purposes according to a current soil test and developed specifications.
- When planting legumes, use pre-inoculated seed or inoculate with the proper viable strain of Rhizobia immediately before planting.
- Exclude livestock until the plants are well established.

Additional criteria when livestock are included in the system:

- Grazing plan must be developed to keep grazing period(s) sufficiently short to allow for plants to recover before re-grazing occurs.
- No more than 20% of the mixture may be alfalfa. Other legumes (especially nonbloating species) may be used in place of or in addition to alfalfa up to a maximum legume percentage of 50%.
- In areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates.
- o Prior to implementation, select a deep-rooted perennial forage species with an erosion control rating => Fair or grassland mixture for establishment [see 'Erosion Control Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code 723) specification]. These species will also contribute to maintaining or increasing soil organic matter. Verify the mixture contains at least one legume and contain a minimum of 50 percent grass species. If livestock are included in the system, no more than 20% of the mixture may be alfalfa. NRCS will provide technical assistance, as needed. If livestock are included in the system, in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.

Species	Species type (grass, legume, broadleaf)

- o Prior to implementation, select planting technique, seeding rates, and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Planting rates	



CONSERVATION STEWARDSHIP PROGRAM

- During implementation:
 - *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
 - *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- *If livestock are included in the system, during implementation following establishment, a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow plants to recover before re-grazing occurs.*
- *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
 - *If livestock are included in the system, keep documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field.*
 - *If haying will be included in the system, keep documentation photographs of each field before and after haying (include dates and forage heights).*
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, use selected mixture and site information to calculate the soil loss and the Soil Condition Index (SCI) values using current NRCS wind and water erosion prediction technologies.
Soil erosion = _____ t/ac/year and SCI value = _____
- o Prior to implementation, verify the enhancement is planned for cropland. Prior to implementation, verify the selected perennial grassland mixture includes a minimum of 50% grass species. If livestock are included in the system, no more than 20% of the mixture may be alfalfa. If livestock are included in the system, in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.

As needed, prior to implementation, NRCS will provide technical assistance:

- Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
- Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o Prior to implementation, verify the enhancement is planned for cropland.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o If livestock are included in the system, verify during implementation following establishment, that a grazing plan is developed to keep grazing periods 7 days or less to allow plants to recover before re-grazing occurs.
- o If haying is included in the system, verify during implementation following establishment, a haying plan is developed that meets the Forage Harvest Management (Code 511) conservation practice standard.
- o After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.



United States Department of Agriculture

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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512106Z2

Forage plantings that can help increase organic matter in depleted soils

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can help improve soil quality of depleted sites through increase or conservation of the organic matter in the soil.

Criteria

- Select perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that will provide ground cover and root mass needed to be sufficient to protect the soil from wind and water erosion.
- This enhancement is applicable where soils have been depleted of organic matter (typically from direct exposure to air through plowing or disking, and/or having little or no vegetation growing on the soil for a period of time. In these circumstances, organic matter can be increased through planting of deep-rooted perennial species with the capability of moving carbon into the soil horizons naturally, and then



CONSERVATION STEWARDSHIP PROGRAM

managing these plant communities for optimum production of above ground matter (forage).

- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.
- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test and according to Land Grant University recommendations. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Inspect and calibrate equipment prior to use. Continually monitor during planting to insure proper rate, distribution and depth of planting is maintained. Monitor new plantings for water stress. Depending on the severity of drought, water stress may require reducing weeds, early harvest of any companion crop, irrigating when possible, or replanting failed stands.

Documentation Implementation Requirements

Participant will:

- *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates.*
- Prior to implementation, select a perennial forage species or grassland mixture for establishment. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed.



CONSERVATION STEWARDSHIP PROGRAM

Species	Forage category (grass, legume, forb)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting date	
Planting method	
Seeding rate	

- o *During implementation:*
 - o *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
 - o *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o If livestock are included in the system, prior to implementation a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.



CONSERVATION STEWARDSHIP PROGRAM

- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
 - If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (*dates and forage heights*) for each field.
 - If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
 - If haying will be included in the system, keep documentation photographs of each field before and after haying (*include dates and forage heights*)
- o After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).



CONSERVATION STEWARDSHIP PROGRAM

- Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, verify during implementation following establishment, that a grazing plan is developed to keep grazing periods to 7 days or less to allow for forages to recover before re-grazing occurs.
 - If haying is included in the system, verify during implementation following establishment, a haying plan is developed that meets the Forage Harvest Management (Code 511) conservation practice standard.
- During implementation, evaluate any planned changes to verify they meets the enhancement criteria.
 - After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512132Z1

Forage and biomass planting that produces feedstock for biofuels or energy production

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Conversion of cropped land to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown. **Criteria**

- o Establish perennial grassland mixture on cropland. Mixtures shall be selected based on:
 - o Minimum of 50% grass species.
 - o Climatic conditions, such as annual precipitation and its distribution, growing season length, temperature extremes and the USDA Plant Hardiness Zone.
 - o Soil condition and landscape position attributes such as; pH, available water holding capacity, aspect, slope, drainage class, fertility level, salinity, depth, flooding and ponding, and levels of phytotoxic elements that may be present.
 - o Resistance to disease and insects common to the site or location.
 - o Intended use, level of management, realistic yield estimates, maturity stage, and compatibility with other species. Verify plant adaptation to the area prior to planting.
- o Follow state specific recommendations for planting rates, methods and dates. Seeding rates will be calculated on a pure live seed (PLS) basis. Plant at a depth appropriate for the seed size or plant material, while assuring uniform contact with soil.



CONSERVATION STEWARDSHIP PROGRAM

- o Prepare the site to provide a medium that does not restrict plant emergence.
- o Plant when soil moisture is adequate for germination and establishment.
- o All seed and planting materials must meet state quality standards.
- o Do not plant federal, state, or local noxious species.
- o Apply all plant nutrients and/or soil amendments for establishment purposes according to a current soil test and developed specifications.
- o When planting legumes, use pre-inoculated seed or inoculate with the proper viable strain of Rhizobia immediately before planting.
- o Exclude livestock until the plants are well established.
- o Ground cover and root mass need to be sufficient to protect the soil from wind and water erosion.

Additional criteria when livestock are included in the system:

- o Grazing plan must be developed to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.
- o No more than 20% of the mixture may be alfalfa. Other legumes (especially non-bloating species) may be used in place of or in addition to alfalfa up to a maximum legume percentage of 50%.

Documentation and Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates.*
- o *Prior to implementation, select a perennial grassland mixture for establishment. If livestock are included in the system, no more than 20 percent of the mixture may be alfalfa and contain a minimum of 50 percent perennial grass species. NRCS will provide technical assistance, as needed.*



CONSERVATION STEWARDSHIP PROGRAM

Species	Species type (grass, legume, broadleaf)

- o Prior to implementation, select planting technique, seeding rates, and timing appropriate for the site and soil conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Technique	
Planting Rates	

- o *During implementation:*
 - o *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
 - o *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o If livestock are included in the system, prior to implementation a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* must be developed to keep grazing periods 7 days or less to allow plants to recover before re-grazing occurs.
- o If haying is included in the system, during implementation following establishment, a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard* must be developed.
- o During implementation, keep the following documentation:
 - o Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

- o Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- o If livestock are included in the system, documentation and photographs of turn in/turn out grazing records (*dates and forage heights*) for each field. If livestock are included in the system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- o If haying will be included in the system, keep documentation photographs of each field before and after haying (*include dates and forage heights*).
- o After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- o Prior to implementation, verify the enhancement is planned for cropland. Prior to implementation, verify the selected perennial grassland mixture includes a minimum of 50 percent grass species. If livestock are included in the system, no more than 20 percent of the mixture may be alfalfa.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
 - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o If livestock are included in the system, develop a grazing *plan that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods *7 days or less* to allow plants to recover before re-grazing occurs.



CONSERVATION STEWARDSHIP PROGRAM

- o If haying is included in the system, verify during implementation following establishment, a haying plan is developed that meets the Forage Harvest Management (Code 511) conservation practice standard.
- o Prior to implementation, verify the enhancement is planned for cropland.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____
Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512132Z2

Native grasses or legumes in forage base to improve plant productivity and health

CONSERVATION PRACTICE 512 – Forage and Biomass Planting

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 5 Years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that meet the cover demand for movement by the wildlife species of concern.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.



CONSERVATION STEWARDSHIP PROGRAM

- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be preinoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet livestock forage demand during times that normal farm/ranch forage production is inadequate. When wildlife species are of concern, plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.
- Forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. Forage species planted as mixtures will exhibit similar palatability to minimize selective grazing.

Documentation and Implementation Requirements

Participant will:

- *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s).*
- Prior to implementation, select a perennial forage species or grassland mixture for establishment. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed.



CONSERVATION STEWARDSHIP PROGRAM

Species	Species type (grass, legume, broadleaf)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Technique	
Planting Rates	

- o *During implementation:*
 - o *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
 - o *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o *If livestock are included in the system, prior to implementation a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.*
- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o During implementation, keep the following documentation:
 - o Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

- o Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- o If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (*dates and forage heights*) for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- o If haying will be included in the system, keep documentation photographs of each field before and after haying (*include dates and forage heights*).
- o After implementation, make the forage planting, *haying* and grazing records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- o If livestock are included in the system, prior to implementation a grazing plan must be developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
 - o Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - o If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods to 7 days or less to allow forages to recover before re-grazing occurs.
 - o If haying is included in the system, develop a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard*.



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- o During implementation, evaluate any planned changes to verify they *meet* the enhancement criteria.
- o After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512133Z1

Native grasses or legumes in forage base to improve plant community structure and composition

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that meet the cover demand for movement by the wildlife species of concern.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.



CONSERVATION STEWARDSHIP PROGRAM

- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet livestock forage demand during times that normal farm/ranch forage production is inadequate. When wildlife species are of concern, plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.
- Forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. Forage species planted as mixtures will exhibit similar palatability to minimize selective grazing.

Documentation and Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s).*
- o Prior to implementation, select a *native* perennial forage species or grassland mixture for establishment. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed.



CONSERVATION STEWARDSHIP PROGRAM

Species	Species type (grass, legume, broadleaf)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Method	
Planting Rates	

- o *During implementation:*
 - *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
 - *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o *If livestock are included in the system, prior to implementation a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.*
- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.



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- If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (*dates and forage heights*) for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
 - If haying will be included in the system, keep documentation photographs of each field before and after haying (*include dates and forage heights*).
- o After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- o If livestock are included in the system, prior to implementation a grazing plan must be developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- o As needed, prior to implementation, NRCS will provide technical assistance:
- Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
 - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
 - If haying is included in the system, develop a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard*.



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- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512133Z2

Forage plantings that enhance bird habitat (structure and composition)

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide cover and shelter components of bird habitat.

Criteria

- Wildlife species of concern for cover and shelter will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), and will be a species that would be present for at least part of their life cycle in the geographical/physiographic region.
- The state's WHEG will be completed by an NRCS or partner wildlife biologist. Cover and shelter habitat requirements for the wildlife species of concern will be specified on the WHEG. The total WHEG score after installation of this practice will be 0.75 or greater.



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- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, which meet the cover and shelter needs for bird species of concern when they will be present.
- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.
- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet cover and shelter habitat requirements for specified bird species during times that normal farm/ranch forage production is inadequate. Plant selection will help to increase scores on the state's approved NRCS habitat evaluation procedure for the bird species of concern.

Documentation Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s).*



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- o Prior to implementation, select *native* perennial forage species or grassland mixture with a wildlife habitat rating greater than or equal to Good [see 'Wildlife Habitat Rating' column of Table 1 in the Vegetation Establishment, Herbaceous Seeding (Code 723) specification]. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed.

Species	Forage category (grass, legume, forb)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Method	
Planting Rate	

- o During implementation:
 - o Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.



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- *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- *If livestock are included in the system, prior to implementation a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.*
- *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- During implementation, keep records and documentation of seed (Pure Live Seed) and any fertilizer or amendments purchased, and make available for review by NRCS to verify implementation of the enhancement.
- During implementation, keep records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
- *During implementation, if livestock are included in the grazing system, keep documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.*
- *During implementation, if haying will be included in the system, keep documentation photographs of each field before and after haying (include dates and forage heights).*
- After implementation, make the forage planting, haying and grazing records, as well as any photographs taken available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).



CONSERVATION STEWARDSHIP PROGRAM

- Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
 - If haying is included in the system, develop a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard*.
- o During implementation, evaluate any planned changes to verify they *meet* the enhancement criteria.
 - o Prior to and after implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). Minimum score after implementation is to be 0.75 or greater. *Use the Prairie and Grassland Community Model WHAG in the eFOTG.*

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation: _____

- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned *native* perennial grassland mixture was established to specifications developed for the site.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512136Z1

Establish pollinator and/or beneficial insect habitat

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for pollinators and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that meet the nectar needs of specified, pollinating insects at times when they will be present and foraging. These plants need to also provide forage or other habitat values for wildlife and livestock.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.



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- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be preinoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet nectar requirements for specified pollinators during times that normal farm/ranch forage production is inadequate. Plant selection will help to increase scores on the state's approved NRCS habitat evaluation procedure for pollinators.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, select a perennial forage species or grassland mixture for establishment. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. (NRCS will provide technical assistance, as needed.)
- o *Select native, perennial, grass/forb/legume plant species with a wildlife habitat rating greater than or equal to Good [see 'Wildlife Habitat Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code 723) specification]. Further guidance is as follows:*
 - o *Use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.*
 - o *See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant*



CONSERVATION STEWARDSHIP PROGRAM

Characteristics Information Sheets (IS-MO723pc and IS-MO723s). An alternate method of determining seed mixes is to use the Missouri Department of Conservation (MDC) Native Seed Calculator. Minimum seed requirements using this alternate method will be 50 seeds per square foot when mechanically planted and 75 seeds per square foot when seed is broadcasted.

- o Refer to Missouri information sheet IS-MO643 Monarch for listing of forbs beneficial to pollinators and other beneficial insects. Job sheets IS-MO643 Native Pollinators and IS-MO645 Wildlife and Pollinator Plantings may be used.
- o Prior to implementation, Identify pollinator species and other associated insects to be benefitted. Reference the MU Extension – IPM1028 “Increasing Beneficial Insects in Row Crops and Gardens”.

Species	Forage category (grass, legume, forb)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.



CONSERVATION STEWARDSHIP PROGRAM

Planting date	
Planting method	
Planting rate	

- o *During Implementation, apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
- o *During implementation, exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o *If livestock are included in the system, prior to implementation a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.*
- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- o *If livestock are included in the grazing system, keep documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field. If livestock*



CONSERVATION STEWARDSHIP PROGRAM

- are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- o *If haying will be included in the system, during implementation keep documentation photographs of each field before and after haying (include dates and forage heights).*
 - o After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.
 - o *After implementation, provide a map showing fields seeded.*

NRCS will:

- o *If livestock are included in the system, develop a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.*
- o *If haying is included in the system, develop a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard.*
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o Prior to implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.60 or greater.*

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation (*Planned*): _____

- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned *native* perennial grassland mixture was established to specifications developed for the site. Complete the MO Seeding Calculator to document completion of this enhancement.



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- o After implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.60 or greater.*

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation (Applied): _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512136Z2

Native grasses or legumes in forage base to provide wildlife food

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, which meet the food requirements of the wildlife species of concern.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.



CONSERVATION STEWARDSHIP PROGRAM

- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be preinoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet livestock forage demand during times that normal farm/ranch forage production is inadequate. When wildlife species are of concern, plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.
- Forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. Forage species planted as mixtures will exhibit similar palatability to minimize selective grazing.

Documentation and Implementation Requirements

Participant will:

- *Prior and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.*
- *Prior to implementation, select native perennial forage species or grassland mixture with a wildlife habitat rating equal to or greater than Good [see 'Wildlife Habitat Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code 723) specification]. A minimum of 3 species will be planted. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed.*



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, see *Vegetation Establishment Herbaceous Seeding (723)* specification for acceptable cultivars and rates. Refer to Information Sheets *Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N)* and *Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s)*. An alternate method of determining seed mixes is to use the Missouri Department of Conservation (MDC) Native Seed Calculator. Minimum seed requirements using this alternate method will be 50 seeds per square foot when mechanically planted and 75 seeds per square foot when seed is broadcasted.

Species	Species type (grass, legume, broadleaf)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Method	
Planting Rates	

- o **Prior to Implementation:**
 - o If livestock are included in the system, prior to implementation a grazing plan that meets the *Prescribed Grazing (Code 528)* conservation practice standard must be developed to keep grazing periods 7 days or less to allow for forages to recover before re-grazing occurs.
 - o If haying is included in the system, following establishment, a haying plan that meets the *Forage Harvest Management (Code 511)* conservation practice standard must be developed.



CONSERVATION STEWARDSHIP PROGRAM

- During Implementation, adhere to the following guidance:
 - Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
 - Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.
- During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
 - If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field.
 - If haying will be included in the system, keep documentation and photographs of each field before and after haying (include dates and forage heights).
- During implementation, if livestock are included in the grazing system, in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- Prior to implementation, complete the *Prairie and Grassland Community Model WHAG*. The planned minimum score after implementation of this enhancement is to be greater than or equal to 0.60.

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation (Planned): _____



CONSERVATION STEWARDSHIP PROGRAM

- o As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- o If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- o If haying is included in the system, develop a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard*.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
 - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned *native* perennial grassland mixture was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E512136Z2 – Native grasses or legumes in
forage base to provide wildlife food

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512137Z

Forage plantings that enhance bird habitat (cover and shelter)

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide cover and shelter components of bird habitat.

Criteria

- Wildlife species of concern for cover and shelter will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), and will be a species that would be present for at least part of their life cycle in the geographical/physiographic region.
- The state's WHEG will be completed by an NRCS or partner wildlife biologist. Cover and shelter habitat requirements for the wildlife species of concern will be specified on the WHEG. The total WHEG score after installation of this practice will be 0.75 or greater.
- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and



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insects, which meet the cover and shelter needs for bird species of concern when they will be present.

- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.
- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet cover and shelter habitat requirements for specified bird species during times that normal farm/ranch forage production is inadequate. Plant selection will help to increase scores on the state's approved NRCS habitat evaluation procedure for the bird species of concern.

Documentation Implementation Requirements

Participant will:

- *Prior and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.*
- *Prior to implementation, select native perennial forage species or grassland mixture with a wildlife habitat rating greater than or equal to Good [see 'Wildlife Habitat*



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Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code 723) specification. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s). An alternate method of determining seed mixes is to use the Missouri Department of Conservation (MDC) Native Seed Calculator. Minimum seed requirements using this alternate method will be 50 seeds per square foot when mechanically planted and 75 seeds per square foot when seed is broadcasted.

- o *The wildlife species of concern will be a grassland bird species such as northern bobwhite quail, greater prairie chicken, or other grassland-dependent birds that would be present for at least part of their life cycle.*

Species	Forage category (grass, legume, forb)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.



CONSERVATION STEWARDSHIP PROGRAM

Planting date	
Planting method	
Planting rate	

- o *During implementation, apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
- o *During Implementation, exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o *If livestock are included in the system, prior to implementation a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods to 7 days or less to allow forages to recover before re-grazing occurs.*
- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- o *If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field.*
- o *If haying will be included in the system, keep documentation and photographs of each field before and after haying (include dates and forage heights).*
- o After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.



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NRCS will:

- o Prior to implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater.*

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation (Planned): _____

- o As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
 - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.
 - If haying is included in the system, develop a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard*.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned native perennial grassland mixture was established to specifications developed for the site. Use the MO Seeding Calculator or the MDC Native Seed Calculator to document compliance.
- o *After implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). Minimum score after implementation is to be 0.75 or greater.*

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation (Applied): _____



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E512137Z- Forage plantings that enhance
bird habitat (cover and shelter)

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512138Z

Establish wildlife corridors to enhance access to water

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land, Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide cover needed for wildlife species of concern to move from food/cover/water sources to other food/cover/water sources as needed for their life cycles, and/or to enhance the utility of underused wildlife habitat areas.

Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that meet the cover demand for movement by the wildlife species of concern.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.



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- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be preinoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.
- Protection from grazing or other plant defoliation/biomass loss will be provided as needed to assure adequate corridor cover during the primary wildlife movement time frames.
- Wildlife species of concern for corridor utilization will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

Documentation and Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.*
- o *Prior to implementation, select native perennial forage species or grassland mixture with a wildlife habitat rating greater than or equal to Good [see 'Wildlife Habitat Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code 723) specification]. A minimum of 3 species will be planted. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind*



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and class of the livestock to be fed. NRCS will provide technical assistance, as needed. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s). An alternate method of determining seed mixes is to use the Missouri Department of Conservation (MDC) Native Seed Calculator. Minimum seed requirements using this alternate method will be 50 seeds per square foot when mechanically planted and 75 seeds per square foot when seed is broadcasted.

Species	Species type (grass, legume, broadleaf)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Method	
Planting Rates	

- o If livestock are included in the system, prior to implementation a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.
- o If haying is included in the system, during implementation following establishment, a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard* must be developed.
- o If livestock are included in the grazing system, in areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.



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- o During implementation:
 - o Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of *Rhizobia* immediately before planting.
 - o Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
 - o If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (*dates and forage heights*) for each field.
 - o If haying will be included in the system, keep documentation and photographs of each field before and after haying (*include dates and forage heights*).
- o During implementation, ensure that the forage/biomass is protected from grazing or other plant defoliation/biomass loss.
 - *Grazing or haying of identified corridor is prohibited during the primary nesting/fawning period (May 1 through July 15).*
- o After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement. *Provide a map showing corridor locations.*

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- o Prior to implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). Wildlife species of concern for habitat continuity must be specified on the WHEG. *Use the Prairie and Grassland Community Model WHAG. The total WHAG score after installation will be greater than or equal to 0.75.*



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Species of concern: _____

WHEG score before implementation: _____

WHEG score after implementation: _____

- o As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
 - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods 7 days or less to allow for forages to recover before re-grazing occurs.
 - *If haying is included in the system, develop a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard.*
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o *During implementation, verify that the identified corridor was not grazed or hayed during the primary nesting/fawning period (May 1 through July 15).*
- o After implementation, verify the planned *native* perennial grassland mixture was established to specifications developed for the site.



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CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512139Z1

Establish wildlife corridors to provide habitat continuity

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land, Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide cover needed for wildlife species of concern to move from food/cover/water sources to other food/cover/water sources as needed for their life cycles, and/or to enhance the utility of underused wildlife habitat areas.

Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that meet the cover demand for movement by the wildlife species of concern.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.



CONSERVATION STEWARDSHIP PROGRAM

- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be preinoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.
- Protection from grazing or other plant defoliation/biomass loss will be provided as needed to assure adequate corridor cover during the primary wildlife movement time frames.
- Grazing or other plant defoliation/biomass operations will be timed as needed to assure adequate corridor cover during the primary wildlife movement time frames.
- Wildlife species of concern for corridor utilization will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

Documentation and Implementation Requirements

Participant will:

- **Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.**
- Prior to implementation, select *native* perennial forage species or grassland mixture with a wildlife habitat rating greater than or equal to Good [see 'Wildlife Habitat Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code



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723) specification]. A minimum of 3 species will be planted. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s). An alternate method of determining seed mixes is to use the Missouri Department of Conservation (MDC) Native Seed Calculator. Minimum seed requirements using this alternate method will be 50 seeds per square foot when mechanically planted and 75 seeds per square foot when seed is broadcasted.

Species	Species type (grass, legume, broadleaf)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Seeding rates	

- o *During Implementation:*
 - o Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
 - o Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.
- o If livestock are included in the system, prior to implementation a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.



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- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o *If livestock are included in the grazing system, in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.*
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- o *If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field.*
- o *If haying will be included in the system, keep documentation and photographs of each field before and after haying (include dates and forage heights).*
- o During implementation, ensure that the forage/biomass is protected from grazing or other plant defoliation/biomass loss.
 - o *Grazing or haying of identified corridor is prohibited during the primary nesting/fawning period (May 1 through July 15).*
- o After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement. *Provide a map showing corridor locations.*

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- o Prior to implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). Wildlife species of concern for habitat continuity must be specified on the WHEG. *Wildlife species of concern are to be grassland-dependent wildlife that would be present for at least part of their life cycle. Use the Prairie and Grassland Community Model WHAG. The total WHAG score after installation of this practice will be greater than or equal to 0.60.*



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Species of concern: _____

WHEG score before implementation: _____

WHEG score after implementation: _____

- o As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
 - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods sufficiently short (*7 days or less*) to allow for forages to recover before re-grazing occurs.
 - *If haying is included in the system, develop a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard.*
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o *During implementation, verify that the identified corridor was not grazed or hayed during the primary nesting/fawning period (May 1 through July 15).*
- o After implementation, verify the planned *native* perennial grassland mixture was established to specifications developed for the site.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512139Z2

Establish pollinator and/or beneficial insect habitat continuity (space)

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land, Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for pollinators and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that meet the nectar needs of specified, pollinating insects at times when they will be present and foraging. These plants need to also provide forage or other habitat values for wildlife and livestock.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.



CONSERVATION STEWARDSHIP PROGRAM

- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet nectar requirements for specified pollinators during times that normal farm/ranch forage production is inadequate. Plant selection will help to increase scores on the state's approved NRCS habitat evaluation procedure for pollinators.

Documentation Implementation Requirements

Participant will:

- *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.*
- *Prior to implementation, identify pollinator species and other associated insects to be benefitted. Reference the MU Extension – IPM1028 “Increasing Beneficial Insects in Row Crops and Gardens”.*
- *Prior to implementation, select native perennial forage species or grassland mixture with a wildlife habitat rating greater than or equal to Good [see ‘Wildlife Habitat Rating’ column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code 723) specification]. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. (NRCS will provide technical assistance, as needed.) See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information*



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Sheets (IS-MO723pc and IS-MO723s). An alternate method of determining seed mixes is to use the Missouri Department of Conservation (MDC) Native Seed Calculator. Minimum seed requirements using this alternate method will be 50 seeds per square foot when mechanically planted and 75 seeds per square foot when seed is broadcasted.

- o Prior to implementation, refer to Missouri information sheet IS-MO643 Monarch for listing of forbs beneficial to pollinators and other beneficial insects. Job sheets IS-MO643 Native Pollinators and IS-MO645 Wildlife and Pollinator Plantings may be used.

Species	Forage category (grass, legume, forb)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting date	
Planting method	
Seeding rate	



CONSERVATION STEWARDSHIP PROGRAM

- o *During Implementation:*
 - o *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
 - o *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
 - o *If livestock are included in the system, prior to implementation, a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.*
 - o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o *During implementation, keep the following documentation:*
 - *Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.*
 - *Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.*
 - o *If livestock are included in the grazing system, keep documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.*
 - o *If haying will be included in the system, keep documentation photographs of each field before and after haying (include dates and forage heights).*
- o *After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement. Provide a map showing corridor locations.*



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o Prior to implementation:
 - o If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
 - o If haying is included in the system, develop a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard*.
- o During implementation, evaluate any planned changes to verify they *meet* the enhancement criteria.
- o Prior to implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.60 or greater.*

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation (*Planned*): _____

- o During implementation, evaluate any planned changes to verify they *meets* the enhancement criteria. Use the MO Seeding Calculator or the MDC Native Seed Calculator to document compliance.
- o After implementation, verify the planned *native* perennial grassland mixture was established to specifications developed for the site.



United States Department of Agriculture

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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512139Z3

Establish Monarch butterfly habitat in pastures

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land, Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for Monarch butterflies and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- This enhancement is acceptable for use when converting from degraded pastureland sites that require NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) in order to stabilize the site to address a resource concern.
- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, and will meet the nectar needs of Monarch butterflies at times when they will be present and foraging. These plants need to also provide forage or other habitat values for wildlife and livestock.



CONSERVATION STEWARDSHIP PROGRAM

- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.
- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet nectar requirements for Monarch butterflies during times that the Monarch will be present. Plant selection will help to increase scores on the state's approved NRCS Monarch butterfly habitat evaluation.



CONSERVATION STEWARDSHIP PROGRAM

Documentation Implementation Requirements

Participant will:

- o During implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement.
- o Prior to implementation, see Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s). An alternate method of determining seed mixes is to use the Missouri Department of Conservation (MDC) Native Seed Calculator. Minimum seed requirements using this alternate method will be 50 seeds per square foot when mechanically planted and 75 seeds per square foot when seed is broadcasted.
- o Prior to implementation, refer to Missouri information sheet IS-MO643Monarch for listing of forbs beneficial to pollinators and other beneficial insects. Job sheets IS-MO643 Native Pollinators and IS-MO645 Wildlife and Pollinator Plantings may be used.
- o Prior to implementation, select native perennial forage species or grassland mixture with a wildlife habitat rating greater than or equal to Good [see 'Wildlife Habitat Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding (Code 723) specification]. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed.

Species	Forage category (grass, legume, forb)



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting date	
Planting method	
Planting rate	

- o *During implementation:*
 - o *Establish pollinator habitat on a single site of 0.5 acres for every 40 acres of the selected land use. Maintain this ratio of 1:80 for all sites even those less than 40 acres. When the land use exceeds 40 acres, the habitat may be in a single site or interspersed sites within the land use.*
 - o *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
 - o *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o *If livestock are included in the system, prior to implementation a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.*
- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o During implementation, keep the following documentation:
 - o Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - o Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.



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- o If haying will be included in the system, keep documentation photographs of each field before and after haying (include dates and forage heights).
- o If livestock are included in the grazing system, keep documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- o After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement. *Provide a map of seeding locations.*

NRCS will:

- o Prior to implementation:
 - o If livestock are included in the system, develop a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
 - o If haying is included in the system, develop a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o Prior to implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Minimum score after implementation is to be 0.75 or greater.*

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation (Planned): _____

- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.



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- o After implementation, verify the planned *native* perennial grassland mixture was established to specifications developed for the site.
- o After implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use a Monarch Butterfly Wildlife Habitat Appraisal Guide (WHAG) if available. Otherwise, use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater.*

WHEG score after implementation (*Applied*): _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E512140Z

Native grasses or legumes in forage base

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Crop (perennial); Pasture; Associated Ag Land

RESOURCE CONCERN ADDRESSED: Livestock Production Limitation

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that meet the cover demand for movement by the wildlife species of concern.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.
- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.



CONSERVATION STEWARDSHIP PROGRAM

- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet livestock forage demand during times that normal farm/ranch forage production is inadequate. When wildlife species are of concern, plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.
- Forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. Forage species planted as mixtures will exhibit similar palatability to minimize selective grazing.

Documentation and Implementation Requirements

Participant will:

- *Prior to and during implementation, use the Forage and Biomass Planting (Code 512) conservation practice standard, supporting documents and accompanying job sheets to meet the criteria of this enhancement. See Vegetation Establishment Herbaceous Seeding (723) specification for acceptable cultivars and rates. Refer to Information Sheets Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s).*
- Prior to implementation, select a *native* perennial forage species or grassland mixture for establishment. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. NRCS will provide technical assistance, as needed.



CONSERVATION STEWARDSHIP PROGRAM

Species	Species type (grass, legume, broadleaf)

- o Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. NRCS will provide technical assistance, as needed.

Planting Date	
Planting Method	
Planting Rates	

- o *During implementation:*
 - o *Apply plant nutrients and/or soil amendments for establishment purposes according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.*
 - o *Exclude livestock until an adequate stand is established and meets species specific, local standard for beginning grazing.*
- o *If livestock are included in the system, prior to implementation, a grazing plan that meets the Prescribed Grazing (Code 528) conservation practice standard must be developed to keep grazing periods 7 days or less to allow forages to recover before re-grazing occurs.*
- o *If haying is included in the system, during implementation following establishment, a haying plan that meets the Forage Harvest Management (Code 511) conservation practice standard must be developed.*
- o During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

- If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records (*dates and forage heights*) for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
 - If haying will be included in the system, keep documentation photographs of each field before and after haying (*include dates and forage heights*).
- o After implementation, make the forage planting, *haying* and grazing records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement. Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- o If livestock are included in the system, prior to implementation a grazing plan must be developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
 - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, develop a grazing plan *that meets the Prescribed Grazing (Code 528) conservation practice standard* to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
 - If haying is included in the system, develop a haying plan *that meets the Forage Harvest Management (Code 511) conservation practice standard*.
- o During implementation, evaluate any planned changes to verify they *meet* the enhancement criteria.



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- o After implementation, verify the planned *native* perennial grassland mixture was established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528104Z

Grazing management that protects sensitive areas from gully erosion

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range

RESOURCE CONCERN ADDRESSED: Soil Erosion

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will provide vegetative cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations that cannot tolerate plant defoliation.

Criteria

- Must follow a grazing written plan matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife.
- Enhance diversity of rangeland plants to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by an erosion control planning process.

Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.



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- Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover.
- Plan the intensity, frequency, timing and duration of grazing and/or browsing to:
 - o Minimize deposition or flow of animal wastes into water bodies or sinkholes,
 - o Minimize animal impacts on stream bank or shoreline stability,
 - o Provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff, and
 - o Provide adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation.
- Livestock feeding and watering facilities will be located and designed/installed in a manner to improve livestock distribution and avoid overland flow to sensitive areas.



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Documentation and Implementation Requirements

Participant will:

- o Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.
- o Prior to implementation, obtain a written grazing plan with guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand. Plan will include a contingency plan for potential events that trigger adverse results, such as concentrated flow and gully erosion.
 - *Follow a prescribed grazing plan where the utilization efficiency is => 60 percent as indicated with the MO Graze4 program.*
- o Prior to implementation, develop a map delineating potential sensitive areas to be protected.
- o During implementation, keep livestock herd management records during seasonally important periods of soil erosion potential.
- o During implementation, keep grazing intensity records for key grazing areas that accommodate the criteria above, indicating the protective nature of the grazing system to the sensitive areas.
- o After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - Written grazing plan.
 - Livestock herd management records.
 - o *Includes documentation and photographs of turn in/turn out grazing records (dates and forage heights) for each field.*
 - o *Photographs of the targeted sensitive areas before and after grazing.*



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- Grazing intensity records.
 - *Number and kind of livestock for date that each field is grazed.*
- During implementation, not feed minerals or supplemental feed in identified riparian/floodplain areas.

NRCS will:

- As needed, provide technical additional assistance to the participant as requested.
- Prior to implementation, as needed, assist participant with the development of map delineating potential sensitive areas to be protected.
- Prior to implementation, verify a grazing plan has been developed, which includes written objectives.
- After implementation, verify implementation of the written grazing plan, by reviewing plan and records kept during enhancement implementation. After implementation, verify with the participant on site the protection and condition of the sensitive areas.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528107Z1

Improved grazing management for soil compaction on pasture through monitoring activities

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Manage the harvest of vegetation with grazing and/or browsing animals as adjusted when following recommendations of a qualifying professional, as detailed in the enhancement criteria, generated through pasture condition scoring (PCS).

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Removal of herbage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants, and the nutritional needs of the animals.
- Adjust intensity, frequency, timing and duration of grazing and/or browsing (providing sufficient recovery time to meet planned, written objectives) to meet the desired objectives for the plant communities and associated resources.



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- Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) will be planned for critical periods of plant needs (such as post planting or renovation, severe drought, etc.).
- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.)
- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- Minimize concentrated livestock areas, trailing and trampling to reduce soil compaction, excess runoff and erosion. Manage grazing so as to maintain adequate ground cover, litter and canopy to maintain or improve infiltration and soil health.
- Follow these guidelines as recommended by a Certified Forage and Grassland Professional,

Certified Range Management Consultant, or Certified Professional in Range Management, NRCS Technical Service Provider approved for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices generated through pasture condition scoring (PCS).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.
- ☐ Prior to implementation, acquire a Grazing Management Plan with all the following components: (provide plan to NRCS for review and approval)
 - ☐ Producer goals, objectives and resource concerns
 - ☐ Forage-animal balance sheet
 - ☐ Location and condition of structural improvements
 - ☐ Grazing plan for livestock movement
 - ☐ Watering sites with availability, quantity and quality
 - ☐ Contingency plan
 - ☐ Forage inventory
 - ☐ Monitoring plan
- ☐ During implementation, secure a Certified Forage and Grassland Professional, Certified Range Management Consultant, Certified Professional in Range Management, NRCS Technical Service Provider approved for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices to:
 - 1) Select a monitoring site in each forage type or forage mixture on the enrolled acreage to assess with the Pasture Condition Scoring tool.
 - 2) Conduct assessments on those sites using the Pasture Condition Scoring tool and document the location. *Provide a Midwest Pasture Condition Scoresheet (PCS) plus the narrative management recommendations for each forage type (or forage mixture) on enrolled*



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acreage. An additional PCS is to be completed following the implementation of the management recommendations that must result in a minimum score of 35. If the PCS is below 35 then additional recommendations are to be implemented followed by another PCS until the target score of 35 is reached. If the initial PCS is greater than or equal to 35, then the initial PCS must be improved by at least 5 percent. Pictures are to be taken each time PCS is completed.

- 3) Develop a written recommendation including duration and intensity of grazing and/or browsing based on desired health and productivity objectives while addressing adequate cover, litter and canopy to maintain or improve infiltration, soil health and reduce soil compaction and other resource concerns identified during the assessment.
- o *During implementation, not feed minerals or supplemental feed in identified riparian/floodplain areas.*
 - o During implementation, identify key grazing areas and key forage species and monitor pastures for grazing utilization.
 - o During implementation, keep pasture/herd in/out records.
 - o During implementation, complete forage utilization jobsheet at the end of the grazing season for NRCS Conservation Practice Standard Prescribed **Grazing (528)**.
 - o During implementation, document adjustments needed to maintain feed and forage balance.
 - o After implementation, provide the following items for review by NRCS:
 - o Pasture Condition Score Sheets with all field notes and locations.
 - o Written documentation from professional with recommendations and any needed follow up actions.
 - o Pasture/herd in/out dates.
 - o Completed forage utilization jobsheet.
 - o Animal/forage balance sheet.
 - o *During implementation, annually submit to the NRCS field office a field log including:*
 - o *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - o *Photos are to be taken before and after grazing (forage and livestock).*



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- o *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
- o *A map identifying riparian/floodplain or other sensitive areas of offered acres.*

NRCS will:

- o As needed, provide technical additional assistance to participant as requested.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement, including forage utilization jobsheet.
- o Prior to implementation, provide soils information and/ or Forage Suitability Groups as requested.
- o After implementation, review all Pasture Condition Score sheets and written recommendations made by professional.
- o After implementation, verify implementation of the grazing management plan by reviewing grazing/herd in/out records, forage utilization jobsheet, animal/forage balance records and changes made to address resource concerns identified during the Pasture Condition Scoring assessments.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528118Z1

Prescribed grazing on pastureland that maintains/improves riparian and watershed function impairment from nutrients

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.

Criteria

- Must follow a written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife.
- Enhance diversity of plants to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by a planning process that includes: 1) Clear objectives, 2) A resource inventory including a forage inventory, structural



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improvements, and existing resource conditions, 3) Grazing plan, and 4) A contingency plan.

- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover and riparian/floodplain plant community structure and functions.
- Manage grazing and/or browsing so as to provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff.
- Provide adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation by moving livestock appropriately.
- Graze and rest pastures appropriately and with the right numbers, class, and kind of livestock so as to maintain adequate riparian community structure and function to sustain associated riparian, wetland, floodplain and stream species.
- If nutrients are applied, soil testing and nutrient application will be done according to local land grant university guidance or equivalent.



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Documentation and Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- o Prior to implementation, obtain a written grazing plan that identifies the following:
 - o Goals and objectives of the plan
 - o Forage/Animal Balance
 - o A grazing plan narrative describing the basis for when livestock movement or rotation will occur.
 - o Contingency plans for forage shortfalls.
 - o Monitoring locations, key species, and monitoring techniques.
- o Map identifying all permanent pastures, water sources, and any riparian area or watershed drainage locations improved or maintained by this management.
- o Prior to implementation, a nutrient management plan will be developed if nutrients will be applied. The nutrient management plan will detail appropriate soil testing protocol and acceptable nutrient application tolerances.
- o Prior to implementation, a copy of the developed grazing plan will be submitted to NRCS for review and approval.
- o During implementation, consult with NRCS or a qualified grazing professional to adjust and adapt the grazing plan to current conditions. Changes to the grazing plan will be documented in writing.
- o After implementation, make all records available for review by NRCS to verify implementation of the enhancement.



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- o During implementation, follow a prescribed grazing plan that increases harvest efficiency by utilizing a 75 percent increase in the number of pasture/paddocks per movement group (herd). Use the following formula for documentation:

EXAMPLE:

- A. Current # of Pastures/Paddocks 6
- B. Planned # of Pastures/Paddocks 11
- C. % Increase = $((B/A)-1)100$ $((11/6)-1)100 = ((1.83)-1)100 =$
 $(.83)100\% = \mathbf{83\%}$

Grazing Plan:

- A. Current # of Pastures/Paddocks _____
- B. Planned # of Pastures/Paddocks _____
- C. % Increase = $((B/A)-1)100\%$ _____
- o During implementation, annually submit to the NRCS field office a field log including:
 - o Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.
 - o Photos are to be taken before and after grazing (forage and livestock).
 - o A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.
 - o A map identifying riparian/floodplain or other sensitive areas of offered acres.
- o During implementation, not feed minerals or supplemental feed in identified riparian/floodplain areas.



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NRCS will:

- Prior to implementation, assist the participant with development of a grazing plan and nutrient management plan if requested to do so. If NRCS does not assist with plan development, the plan(s) will be reviewed by NRCS for approval prior to implementation.
- During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- After implementation, review written grazing records provided by the participant to determine if the grazing plan was adequately followed to protect or enhance riparian areas, wetland areas, or overall watershed function.
- After implementation, if nutrients have been applied, soil testing and application records will be reviewed to determine if nutrients have been applied responsibly.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528119Z

Grazing management that protects sensitive areas-ground water from nutrients

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will provide cover and density needed in the watershed in order to protect sensitive areas such as sinkholes, streams, highly erodible areas, or locations with plants that cannot tolerate defoliation.

Criteria

- o A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife will be followed.
- o Enhance diversity of plants to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by a planning process that includes: 1) Clear objectives, 2) A resource inventory including a forage inventory, structural improvements, and existing resource conditions, 3) Grazing plan, and 4) A contingency plan.



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- o Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- o Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover.
- o Plan the intensity, frequency, timing and duration of grazing and/or browsing that will:
 - o Minimize deposition or flow of animal wastes into water bodies or sinkholes,
 - o Minimize animal impacts on stream bank or shoreline stability,
 - o Provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff, and
 - o Provide adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation.
- o Livestock feeding and watering facilities will be located and designed/installed in a manner to improve livestock distribution and avoid overland flow to sensitive areas.
- o When nutrients are applied on pastureland, soil testing and nutrient application will be done according to local land grant university guidance or the equivalent there of.



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Documentation and Implementation Requirements

Participant will:

- *Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- Prior to implementation, obtain a written grazing plan that identifies the following:
 - The goals and objectives of the plan
 - Forage/Animal Balance
- A grazing plan narrative describing the basis for when livestock movement or rotation will occur.
- Contingency plans for forage shortfalls.
- Monitoring locations, key species, and monitoring techniques.
- A map identifying all permanent pastures, water sources, and any riparian area or other sensitive areas improved or maintained by this management.
- Prior to implementation, a nutrient management plan will be developed if nutrients will be applied. The nutrient management plan will detail appropriate soil testing protocol and acceptable nutrient application amounts.
- Prior to implementation, a copy of the completed grazing plan will be submitted to NRCS for review and approval.
- During implementation, consult with NRCS or a qualified grazing professional to adjust and adapt the grazing plan to current conditions. Changes to the grazing plan will be documented in writing.



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- o After implementation, make all records available for review by NRCS to verify implementation of the enhancement.
- o *During implementation, follow a prescribed grazing plan that increases harvest efficiency by utilizing a 75 percent increase in the number of pasture/paddocks per movement group (herd). Use the following formula for documentation:*

EXAMPLE:

- A. Current # of Pastures/Paddocks 6
- B. Planned # of Pastures/Paddocks 11
- C. % Increase = $((B/A)-1)100$ $((11/6)-1)100 = ((1.83)-1)100 = (.83)100\% = \underline{\underline{83\%}}$

Grazing Plan:

- A. Current # of Pastures/Paddocks _____
- B. Planned # of Pastures/Paddocks _____
- C. % Increase = $((B/A)-1)100\%$ _____
- o *During implementation, annually submit to the NRCS field office a field log including:*
 - o *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - o *Photos are to be taken before and after grazing (forage and livestock).*
 - o *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - o *A map identifying riparian/floodplain or other sensitive areas of offered acres.*
- o *During implementation, not feed minerals or supplemental feed in identified riparian/floodplain areas.*
- o *During implementation, move feeding locations to different parts of the pastures at least annually to minimize concentrated livestock areas thus improving nutrient distribution and overland flow to sensitive areas. Annually provide map of mineral and supplemental feeding locations.*



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- o *Prior to implementation, provide a written copy of a Nutrient Management Plan that provides guidance to the application of inorganic and organic fertilizers in a way that protects ground water infiltration sources.*

NRCS will:

- o Prior to implementation, assist the participant with development of a grazing plan and/or nutrient management plan, as requested. If NRCS does not assist with plan development, review the plan for approval prior to implementation.
- o During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- o After implementation, review written grazing records provided by the participant to determine if the grazing plan was adequately followed to protect or enhance riparian areas, wetland areas, or overall watershed function.
- o After implementation, if nutrients have been applied, soil testing and application records will be reviewed to determine if nutrients have been applied responsibly.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528122Z

Prescribed grazing on pastureland that maintains/improves riparian and watershed function impairment from pathogens/chemicals

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife will be followed.
- Adjust the intensity, frequency, timing and duration of grazing and/or browsing of pastures in proximity to streams as needed and determined by a planning process that includes:



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- o Clear objectives,
- o A resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
- o Grazing plan, and
- o A contingency plan.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover and riparian/floodplain plant community structure and functions.
- Manage grazing and/or browsing so as to provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff.
- Provide adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation by moving livestock appropriately. Generally, riparian pastures and those with overland flow directly into streams will need to be smaller than other pastures in the grazing system in order to have shorter grazing periods and longer deferment periods than other pastures in the grazing system. If compost or animal waste is applied mechanically, all laws and statutes (including any required setbacks from streams) will be adhered to, and an NRCS approved nutrient management plan will be prepared and followed.
- Graze and rest pastures appropriately and with the right numbers, class, and kind of livestock so as to maintain adequate riparian community structure and function to sustain associated riparian, wetland, floodplain and stream species.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- o *Prior to implementation, obtain a written grazing plan with guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand.*
- o *Prior to implementation, develop a map delineating the location of the riparian area or watershed drainage locations improved or maintained by this management.*
- o *During implementation, keep pasture/herd in/out records and grazing intensity records for key grazing areas*
- o *After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:*
 - *Written grazing plan on enrolled acreage.*
 - *Pasture/herd in/out records.*
- o *During implementation, follow a prescribed grazing plan that increases harvest efficiency by utilizing a 75 percent increase in the number of pasture/paddocks per movement group (herd). Use the following formula for documentation:*

EXAMPLE:

- A. *Current # of Pastures/Paddocks* 6
- B. *Planned # of Pastures/Paddocks* 11
- C. *% Increase = ((B/A)-1)100 ((11/6)-1)100 = ((1.83)-1)100 = (.83)100% = **83%***

Grazing Plan:

- A. *Current # of Pastures/Paddocks* _____
- B. *Planned # of Pastures/Paddocks* _____



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C. % Increase = $((B/A)-1)100\%$ _____

- o During implementation, annually submit to the NRCS field office a field log including:
 - o Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.
 - o Photos are to be taken before and after grazing (forage and livestock).
 - o A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.
 - o A map identifying riparian/floodplain or other sensitive areas of offered acres.
- o During implementation, not feed minerals or supplemental feed in identified riparian/floodplain areas.
- o During implementation, move feeding locations to different parts of the pastures at least annually to minimize concentrated livestock areas thus improving nutrient distribution and overland flow to sensitive areas. Annually provide map of mineral and supplemental feeding locations.
- o Prior to implementation, provide a written copy of a Nutrient Management Plan that provides guidance to the application of inorganic and organic fertilizers in a way that protects ground water infiltration sources.

NRCS will:

- o As needed, provide technical additional assistance to the participant as requested.
- o After implementation, verify implementation of the written grazing plan, by reviewing plan and pasture/herd in/out records kept during enhancement implementation.



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NRCS Documentation Review:

I have reviewed all required participant documentation and determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E528122Z – Prescribed grazing on pastureland that maintains/improves riparian and watershed function impairment from pathogens/chemicals.

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CONSERVATION ENHANCEMENT ACTIVITY

E528126Z

Prescribed grazing on pastureland that maintains/improves riparian and watershed function through minimizing sediment in surface water

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will provide cover and density needed in the watershed in order to reduce runoff, improve infiltration, provide for above ground water filtration and sustain applicable fish and wildlife species habitat.

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife will be followed.
- Adjust the intensity, frequency, timing and duration of grazing and/or browsing of pastures in proximity to streams as needed and determined by a planning process that includes:



CONSERVATION STEWARDSHIP PROGRAM

- o Clear objectives,
 - o A resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
 - o Grazing plan, and
 - o A contingency plan.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
 - Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover and riparian/floodplain plant community structure and functions.
 - Manage grazing and/or browsing so as to provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff.
 - Provide adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation by moving livestock appropriately. Generally, riparian pastures and those with overland flow directly into streams will need to be smaller than other pastures in the grazing system in order to have shorter grazing periods and longer deferment periods than other pastures in the grazing system.
 - Graze and rest pastures appropriately and with the right numbers, class, and kind of livestock so as to maintain adequate riparian community structure and function to sustain associated riparian, wetland, floodplain and stream species.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- o Prior to implementation, obtain a written grazing plan with guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand.
- o Prior to implementation, develop a map delineating the location of the riparian area or watershed drainage locations improved or maintained by this management.
- o During implementation, keep pasture/herd in/out records and grazing intensity records for key grazing areas
- o After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - Written grazing plan, including Pasture Condition Scoresheet for each forage type (or forage mixture) on enrolled acreage.
 - Pasture/herd in/out records.
- o *During implementation, follow a prescribed grazing plan that increases harvest efficiency by utilizing a 75 percent increase in the number of pasture/paddocks per movement group (herd). Use the following formula for documentation:*

EXAMPLE:

- A. *Current # of Pastures/Paddocks* 6
- B. *Planned # of Pastures/Paddocks* 11
- C. *% Increase = ((B/A)-1)100* $((11/6)-1)100 = ((1.83)-1)100 = (.83)100\% = \underline{\underline{83\%}}$



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Grazing Plan:

- A. Current # of Pastures/Paddocks _____
- B. Planned # of Pastures/Paddocks _____
- C. % Increase = $((B/A)-1)100\%$ _____
- o During implementation, annually submit to the NRCS field office a field log including:
 - o Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.
 - o Photos are to be taken before and after grazing (forage and livestock).
 - o A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.
 - o A map identifying riparian/floodplain or other sensitive areas of offered acres.
- o During implementation, not feed minerals or supplemental feed in identified riparian/floodplain areas.
- o During implementation, move feeding locations to different parts of the pastures at least annually to minimize concentrated livestock areas thus improving nutrient distribution and overland flow to sensitive areas. Annually provide map of mineral and supplemental feeding locations.

NRCS will:

- o As needed, provide technical additional assistance to the participant as requested.
- o After implementation, verify implementation of the written grazing plan, by reviewing plan and pasture/herd in/out records kept during enhancement implementation.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528132Z1

Improved grazing management on pasture for plant productivity and health through monitoring activities

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Managing the harvest of vegetation with grazing and/or browsing animals as adjusted when following recommendations of a qualifying professional, as detailed in the enhancement criteria, generated through pasture condition scoring (PCS).

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Removal of herbage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants, and the nutritional needs of the animals.
- Adjust intensity, frequency, timing and duration of grazing and/or browsing (providing sufficient recovery time to meet planned, written objectives) to meet the desired objectives for the plant communities and associated resources.



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- Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) will be planned for critical periods of plant needs (such as post planting or renovation, severe drought, etc.).
- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.)
- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- The narrative management recommendations and implementation for duration and intensity of grazing and/or browsing will be based on the desired plant health and productivity objectives. Soil test periodically for nutrient status and soil reaction and apply fertilizer and/or soil amendments according to soil test to improve plant vigor.
- Follow these guidelines as recommended by a Certified Forage and Grassland

Professional, Certified Range Management Consultant, or Certified Professional in Range Management, NRCS Technical Service Provider approved for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices generated through pasture condition scoring (PCS).



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Documentation and Implementation Requirements

Participant will:

- o Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.
- o Prior to implementation, *acquire* a Grazing Management Plan with all the following components: (provide plan to NRCS for review and approval)
 - Producer goals, objectives and resource concerns
 - Forage-animal balance sheet
 - Location and condition of structural improvements
 - Grazing plan for livestock movement
 - Watering sites with availability, quantity and quality
 - Contingency plan
 - Forage inventory
 - Monitoring plan
- o Prior to implementation, perform a soil test on the pastures enrolled in the enhancement.
- o During implementation, secure a Certified Forage and Grassland Professional, Certified Range

Management Consultant, Certified Professional in Range Management, NRCS Technical Service Provider approved for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices to:

- Select a monitoring site in each forage type or forage mixture on the enrolled acreage to assess with the Pasture Condition Scoring tool.



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- Conduct assessments on those sites using the Pasture Condition Scoring tool and document the location. *Provide a Midwest Pasture Condition Scoresheet (PCS) plus the narrative management recommendations for each forage type (or Forage mixture) on enrolled acreage. An additional PCS is to be completed following the implementation of the management recommendations that must result in a minimum score of 35. If the PCS is below 35 then additional recommendations are to be implemented followed by another PCS until the target score of 35 is reached. If the initial PCS is greater than or equal to 35, then the initial PCS must be improved by at least 5 percent. Pictures are to be taken each time PCS is completed.*
- Develop a written recommendation including duration and intensity of grazing and/or browsing based on desired health and productivity objectives while addressing adequate cover, litter and canopy to maintain or improve infiltration, soil health and reduce soil compaction and other resource concerns identified during the assessment.
- *During implementation, not feed minerals or supplemental feed in identified riparian/floodplain areas.*
- During implementation, identify key grazing areas and key forage species and monitor pastures for grazing utilization.
- During implementation, keep pasture/herd in/out records.
- During implementation, complete forage utilization jobsheet at the end of the grazing season for NRCS Conservation Practice Standard Prescribed Grazing (528).
- During implementation, document adjustments needed to maintain feed and forage balance.
- After implementation, provide the following items for review by NRCS:
 - Pasture Condition Score Sheets with all field notes and locations.
 - Written documentation from professional with recommendations and any needed follow up actions.



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- Pasture/herd in/out dates.
 - Completed forage utilization jobsheet.
 - Animal/forage balance sheet.
 - Soil test results.
- o During implementation, annually submit to the NRCS field office a field log including:
- *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - *Photos are to be taken before and after grazing (forage and livestock).*
 - *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - *A map identifying riparian/floodplain or other sensitive areas of offered acres.*

NRCS will:

- o As needed, provide technical additional assistance to participant as requested.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement, including forage utilization jobsheet.
- o Prior to implementation, provide soils information and/ or Forage Suitability Groups as requested.
- o After implementation, review all Pasture Condition Score sheets and written recommendations made by professional.
- o After implementation, verify implementation of the grazing management plan by reviewing grazing/herd in/out records, forage utilization jobsheet, animal/forage balance records and changes made to address resource concerns identified during the Pasture Condition Scoring assessments.
- o After implementation, review soil test results.



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E528132Z1-Improved grazing management on
pasture for plant productivity and health
through monitoring activities

March 2018 - Missouri
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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528132Z2

Stockpiling cool season forage to improve plant productivity and health

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture; Associated Agricultural Land

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will stop grazing events of selected paddock(s) to allow pasture forages to grow to maximum vegetative biomass accumulation before the end of the growing season.

Criteria

Additions to the current Prescribed Grazing Plan must include:

- A record of the pastures (or paddocks) and the acreage of each, where forage will be stockpiled.
- The acreage needed for stockpiled forage will be predetermined.
- Stockpiled area will be fertilized at the beginning of the stockpiling period, according to a land grant university approved soil test, to achieve adequate forage growth.



CONSERVATION STEWARDSHIP PROGRAM

- Stockpile will be grazed in a manner that maintains specified minimum forage heights in the grazing plan to avoid damage to soil or forage.
- Do not allow livestock to access previously grazed stockpiled areas when spring regrowth begins until recommended forage heights exist.
- The NRCS Conservation Practice Standard Prescribed Grazing (Code 528) must be followed on all pastures each year this enhancement is in effect. Note - leaving recommended residual forage heights, even though plants are dormant, are needed for erosion control and wildlife.
- Certification recorded that practice requirements have been met after grazing of stockpiled forages is complete before the new growing season begins.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- o *Prior to implementation, obtain a prescribed grazing plan including a plan map that delineates where forage stockpiling will occur. Make these materials available to NRCS for review.*
- o *During implementation, keep pasture/herd in/out records.*
- o *After implementation, make grazing records and photo documentation of stockpiling and level of use available to NRCS.*
- o *During implementation, annually submit to the NRCS field office a field log including:*
 - *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - *Photos are to be taken before and after grazing (forage and livestock).*
 - *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - *A map identifying riparian/floodplain or other sensitive areas of offered acres.*
- o *Follow this guidance for creating and utilizing stockpiled forage:*
 - *Calculate the minimum amount of acreage needed for stockpiled forage based on a ratio of one acre per animal unit (1000 Lbs.).*
 - *Livestock shall be removed from fields to be stockpiled between August 1 and August 31, and the livestock will be kept off for 90 days to allow stockpile growth.*
 - *Fields will have spring growth removed (3-6 inch height) by haying, grazing, or clipping between August 1 and August 31. No grazing is allowed for 90 days after this.*
 - *No hay harvest is allowed on these fields between August 31 and April 1.*



CONSERVATION STEWARDSHIP PROGRAM

- *Apply between 30 and 60 lbs. per acre of actual nitrogen will be applied between August 1 and August 31. If moisture is adequate and the stand is very good and vigorous then up to 80 lbs. of nitrogen may be applied.*
 - *Applications of lime, phosphorus and potassium will be made according to a current soil test.*
 - *Grazing of the stockpiled forage will start no sooner than 90 days after commencing the stockpiling process. Stockpiled forages should be utilized by April 1.*
 - *Use temporary electric fencing to divide the field into strips that are sized to provide adequate forage for as few as one (1) but not more than three (3) days.*
 - *Allocation should begin in the area closest to a freeze-proof water source and progress through the field by moving the temporary fencing forward every one to three days.*
 - *A minimum grazing height of two (2) inches will be maintained.*
- o *During implementation:*
- *Provide photographs of stockpiled forage for each pasture both before grazing of the stockpiled forage begins and after grazing will no longer be done.*
 - *Provide written documentation for each treatment area and year of this enhancement.*
 - *Provide amounts of fertilizer and lime applied including dates.*
 - *Notify NRCS field office when utilization of stockpiled forage has ceased for the year and prior to the onset of the new growing season.*
 - *Not allow livestock access to the previously grazed stockpiled areas until the begin grazing heights shown in Table 1 of the Prescribed Grazing (528) standard are reached.*
 - *Rotate stockpiling to different pastures each year.*

NRCS will:

- o Prior to implementation, review grazing plan and maps provided by participant.
- o During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.



CONSERVATION STEWARDSHIP PROGRAM

- o After implementation, review records and photos provide to confirm adequate stockpiling and acceptable levels of grazing use.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528133Z1

Stockpiling cool season forage to improve structure and composition

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture; Associated Agricultural Land

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will stop grazing events of selected paddock(s) to allow pasture forages to grow to maximum vegetative biomass accumulation before the end of the growing season.

Criteria

Additions to the current Prescribed Grazing Plan must include:

- A record of designated paddocks and acreages to exclude grazing for a stated specified time period.
- The acreage needed for stockpiled forage will be predetermined.
- Stockpiled acreage will be supplied nutrients according to a land grant university approved soil test to achieve adequate forage growth at the beginning of the stockpiling period.



CONSERVATION STEWARDSHIP PROGRAM

- Stockpile will be grazed in a manner that maintains specified minimum forage heights in the grazing plan to avoid damage to soil or forage.
- Do not allow livestock to access previously grazed stockpiled areas when spring regrowth begins until recommended forage heights exist.
- The NRCS Conservation Practice Standard Prescribed Grazing (Code 528) must be followed on all pasture each year this enhancement is in effect. Note - leaving recommended residual forage heights, even though plants are dormant, are needed for erosion control and wildlife.
- Certification recorded that practice requirements have been met after grazing of stockpiled forages is complete before the new growing season begins.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- *Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- *Prior to implementation, develop a prescribed grazing plan including a plan map that delineates where forage stockpiling will occur. Make these materials available to NRCS for review.*
- *After implementation, make grazing records and photo documentation of stockpiling and level of use available to NRCS.*
- *During implementation, annually submit to the NRCS field office a field log including:*
 - *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - *Photos are to be taken before and after grazing (forage and livestock).*
 - *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - *A map identifying riparian/floodplain or other sensitive areas of offered acres.*
- *Follow this guidance for creating and utilizing stockpiled forage:*
 - *Calculate the minimum amount of acreage needed for stockpiled forage based on a ratio of one acre per animal unit (1000 Lbs.).*
 - *Livestock shall be removed from fields to be stockpiled between August 1 and August 31, and the livestock will be kept off for 90 days to allow stockpile growth.*
 - *Fields will have spring growth removed (3-6 inch height) by haying, grazing, or clipping between August 1 and August 31. No grazing is allowed for 90 days after this.*



CONSERVATION STEWARDSHIP PROGRAM

- *No hay harvest is allowed on these fields between August 31 and April 1.*
- *Apply between 30 and 60 lbs. per acre of actual nitrogen will be applied between August 1 and August 31. If moisture is adequate and the stand is very good and vigorous then up to 80 lbs. of nitrogen may be applied.*
- *Applications of lime, phosphorus and potassium will be made according to a current soil test.*
- *Grazing of the stockpiled forage will start no sooner than 90 days after commencing the stockpiling process. Stockpiled forages should be utilized by April 1.*
- *Use temporary electric fencing to divide the field into strips that are sized to provide adequate forage for as few as one (1) but not more than three (3) days.*
- *Allocation should begin in the area closest to a freeze-proof water source and progress through the field by moving the temporary fencing forward every one to three days.*
- *A minimum grazing height of two (2) inches will be maintained.*
- *During implementation:*
 - *Provide photographs of stockpiled forage for each pasture both before grazing of the stockpiled forage begins and after grazing will no longer be done.*
 - *Provide written documentation for each treatment area and year of this enhancement.*
 - *Provide amounts of fertilizer and lime applied including dates.*
 - *Notify NRCS field office when utilization of stockpiled forage has ceased for the year and prior to the onset of the new growing season.*
 - *Not allow livestock access to the previously grazed stockpiled areas until the begin grazing heights shown in Table 1 of the Prescribed Grazing (528) standard are reached.*
 - *Rotate stockpiling to different pastures each year.*

NRCS will:

- Prior to implementation, review grazing plan and maps provided by participant. During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- After implementation, review records and photos provide to confirm adequate stockpiling and acceptable levels of grazing use.



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528133Z2

Grazing management for improving quantity and quality of plant structure and composition for wildlife

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture; Range; Associated Ag Land

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Managing the harvest of vegetation with grazing and/or browsing animals for the purpose of improving the quantity and quality of the structure and composition of the plant community that is available for wildlife.

Criteria

- Must follow a written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand.
- Removal of herbage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants, and the nutritional needs of the animals.
- Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) will be planned for critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).



CONSERVATION STEWARDSHIP PROGRAM

- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.)
- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- Both the specie(s) of concern and the plant functional groups providing structure and composition will be identified in the objectives of the prescribed grazing plan.
- Plan the intensity, frequency, timing and duration of grazing and/or browsing to provide for the development and maintenance of the plant structure, density and diversity needed for the desired fish and wildlife species of concern.
- Manage the afore-mentioned aspects of grazing events so as to maintain a minimum score of 0.60 when evaluated with the state NRCS Wildlife Habitat Evaluation Guide (WHEG).

Documentation and Implementation Requirements

Participant will:

- o *Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- o Prior to implementation, obtain a written grazing plan (NRCS can provide assistance as needed). Plan must include:
 - Clear goals and objectives of the plan, including identification of the specie(s) of concern and the plant functional groups providing structure and composition.
 - Contingency plan for events that trigger adverse results.
 - Forage/Animal Balance.
 - A grazing plan narrative describing the basis for when livestock movement or rotation will occur, including deferment plans.



CONSERVATION STEWARDSHIP PROGRAM

- Contingency plans for forage shortfalls.
 - Monitoring locations, key species, and monitoring techniques.
 - Map identifying all permanent pastures, water sources, and any riparian area or watershed drainage locations improved or maintained by this management.
- o Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG from the eFOTG. Minimum score after implementation is to be 0.60 or greater. Species of concern are grassland-dependent wildlife that would be present for at least part of their life cycle such as northern bobwhite quail and greater prairie chicken.*
- o During implementation, keep the following documentation:
- o Livestock herd management records with seasonally important phenological stages of plant growth relative to species of concern.
 - o Annually complete a forage utilization worksheet, such as NRCS Conservation Practice Standard Prescribed Grazing (Code 528) job sheet.
 - o Grazing intensity records for all key grazing areas that accommodate the criteria.
- o *During implementation, annually submit to the NRCS field office a field log including:*
- o *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - o *Photos are to be taken before and after grazing (forage and livestock).*
 - o *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - o *A map identifying riparian/floodplain or other sensitive areas of offered acres.*
- o During implementation, consult with NRCS to adjust and adapt the grazing plan to current conditions to verify the changes meet enhancement criteria. Changes to the grazing plan will be documented in writing.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, make all records available for review by NRCS to verify implementation of the enhancement.
- After implementation, complete an assessment of the site with NRCS using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

NRCS will:

- As needed, provide technical additional assistance to the participant as requested. Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) as it relates to implementing this enhancement, including any state approved job sheets or work sheets.
- Prior to implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG from the eFOTG. Minimum score after implementation is to be 0.60 or greater. Species of concern are grassland-dependent wildlife that would be present for at least part of their life cycle such as northern bobwhite quail and greater prairie chicken.*

Species of Concern: _____

WHEG score before implementation (Existing): _____

WHEG score after implementation (Planned): _____

- Prior to implementation, assist the participant with development of a grazing plan, if requested. If NRCS does not assist with plan development, the plan(s) will be reviewed by NRCS for approval prior to implementation to confirm the written objectives meet the criteria of the enhancement.
- Prior to implementation, explain the functionality of this enhancement with Enhancements E314332Z and E314134Z, if sequentially applicable.
- During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.



CONSERVATION STEWARDSHIP PROGRAM

O After implementation, review grazing plan, records, and documentation to verify the enhancement was implemented to meet the criteria.

O After implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Minimum score after implementation is to be 0.60 or greater.*

WHEG score after implementation (*Applied*): _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528136Z1

Grazing management for improving quantity and quality of food for wildlife

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture; Range; Forest

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will provide for the capacity of seasonally valuable plant structure, density and diversity needed or the desired wildlife species of concern.

Criteria

- Must follow a written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife.
- Enhance diversity of plant phenological functionality to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by a planning process that includes:
 - o Clear objectives



CONSERVATION STEWARDSHIP PROGRAM

- o Resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
- o Grazing plan, and
- o A contingency plan.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- Identify species of concern and plant functional groups in the objectives of the prescribed grazing plan.
- Plan intensity, frequency, timing and duration of grazing and/or browsing to provide for the development and maintenance of the plant structure, density and diversity needed for the identified wildlife species.
- Evaluate wildlife habitat with the state NRCS Wildlife Habitat Evaluation Guide (WHEG) and manage for a WHEG value of 0.75 or greater.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o *Prior to and during Implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- o Prior to implementation, obtain a written grazing plan (NRCS can provide assistance as needed). Plan must include:
 - o Clear goals and objectives of the plan, including identification of the specie(s) of concern and the plant functional groups providing structure and composition.
 - o Contingency plan for events that trigger adverse results.
 - o Forage/Animal Balance.
 - o A grazing plan narrative describing the basis for when livestock movement or rotation will occur, including deferment plans.
 - o Contingency plans for forage shortfalls.
 - o Monitoring locations, key species, and monitoring techniques.
 - o Map identifying all permanent pastures, water sources, and any riparian area or watershed drainage locations improved or maintained by this management.
- o Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).
- o Prior to implementation the Producer will write clear objectives for grazing management. *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater.*
- o During implementation, keep the following documentation:
 - o Livestock herd management records with seasonally important phenological stages of plant growth relative to species of concern.



CONSERVATION STEWARDSHIP PROGRAM

- Annually complete a forage utilization worksheet, such as NRCS Conservation Practice Standard Prescribed Grazing (Code 528) job sheet.
 - Grazing intensity records for all key grazing areas that accommodate the criteria.
- *During and after implementation, annually submit to the NRCS field office a field log including:*
 - *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - *Photos are to be taken before and after grazing (forage and livestock).*
 - *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - *A map identifying riparian/floodplain or other sensitive areas of offered acres.*
- During implementation, consult with NRCS to adjust and adapt the grazing plan to current conditions to verify the changes meet enhancement criteria. Changes to the grazing plan will be documented in writing.
- After implementation, make all records available for review by NRCS to verify implementation of the enhancement.
- After implementation, complete an assessment of the site with NRCS using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater.*

NRCS will:

- As needed, provide technical additional assistance to the participant as requested. Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) as it relates to implementing this enhancement, including any state approved job sheets or work sheets.



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater.*

Species of Concern: _____

WHEG score before implementation (*Existing*): _____

WHEG score after implementation (*Planned*): _____

- o Prior to implementation, assist the participant with development of a grazing plan, if requested. If NRCS does not assist with plan development, the plan(s) will be reviewed by NRCS for approval prior to implementation to confirm the written objectives meet the criteria of the enhancement.
- o During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- o After implementation, review grazing plan, records, and documentation to verify the enhancement was implemented to meet the criteria.
- o After implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater*

WHEG score after implementation (*Applied*): _____



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528137Z1

Grazing management for improving quantity and quality of cover and shelter for wildlife

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture; Range; Forest

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will provide plant structure, density and diversity needed for the desired wildlife species of concern.

Criteria

- Must follow a written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife.
- Enhance diversity of rangeland plants, generally found on the Ecological Site Description or otherwise documented by measurement protocol, to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by a planning process that includes:
 - Clear objectives



CONSERVATION STEWARDSHIP PROGRAM

- o Resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
 - o Grazing plan, and
 - o A contingency plan.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- Identify species of concern in the objectives of the prescribed grazing plan.
- Plan intensity, frequency, timing and duration of grazing and/or browsing to provide for the development and maintenance of the plant structure, density and diversity needed for the identified wildlife species.
- Evaluate wildlife habitat with the state NRCS Wildlife Habitat Evaluation Guide (WHEG) and manage for a WHEG value of 0.75 or greater.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to and during implementation, use the Prescribed Grazing (Code 528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.
- o Prior to implementation, obtain a written grazing plan (NRCS can provide assistance as needed). Plan must include:
 - o Clear goals and objectives of the plan, including identification of the specie(s) of concern and the plant functional groups providing structure and composition.
 - o Contingency plan for events that trigger adverse results.
 - o Forage/Animal Balance.
 - o A grazing plan narrative describing the basis for when livestock movement or rotation will occur, including deferment plans.
 - o Contingency plans for forage shortfalls.
 - o Monitoring locations, key species, and monitoring techniques.
 - o Map identifying all permanent pastures, water sources, and any riparian area or watershed drainage locations improved or maintained by this management.
- o Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Minimum score after implementation is to be 0.75 or greater.*
- o During implementation, keep the following documentation:
 - o Livestock herd management records with seasonally important phenological stages of plant growth relative to species of concern.
 - o Annually complete a forage utilization worksheet, such as NRCS Conservation Practice Standard Prescribed Grazing (Code 528) job sheet.



CONSERVATION STEWARDSHIP PROGRAM

- o Grazing intensity records for all key grazing areas that accommodate the criteria.
- o *During implementation:*
 - o *Maintain grazing heights suitable for wildlife nesting and cover:*
 - o *Minimum grazing heights of 6 inches for cool-season grasses and 8 inches for warm-season grasses must be maintained during the primary nesting season (May1-July 15).*
 - o *Residual heights will be no less than 8 inches for cool-season and 12 inches for warm-season grasses at the time of the first killing frost.*
- o *During and after implementation, annually submit to the NRCS field office a field log including:*
 - o *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - o *Photos are to be taken before and after grazing (forage and livestock).*
 - o *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - o *A map identifying riparian/floodplain or other sensitive areas of offered acres.*
- o During implementation, consult with NRCS to adjust and adapt the grazing plan to current conditions to verify the changes meet enhancement criteria. Changes to the grazing plan will be documented in writing.
- o After implementation, make all records available for review by NRCS to verify implementation of the enhancement.
- o After implementation, complete an assessment of the site with NRCS using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater.*



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o As needed, provide technical additional assistance to the participant as requested. Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) as it relates to implementing this enhancement, including any state approved job sheets or work sheets.
- o Prior to implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater.*

Species of Concern: _____

WHEG score before implementation (Existing): _____

WHEG score after implementation (Planned): _____

- o Prior to implementation, assist the participant with development of a grazing plan, if requested. If NRCS does not assist with plan development, the plan(s) will be reviewed by NRCS for approval prior to implementation to confirm the written objectives meet the criteria of the enhancement.
- o During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- o After implementation, review grazing plan, records, and documentation to verify the enhancement was implemented to meet the criteria.
- o After implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score after implementation is to be 0.75 or greater.*

WHEG score after implementation (Applied): _____



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528137Z2

Incorporating wildlife refuge areas in contingency plans for prescribed grazing for wildlife cover and shelter

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

A prescribed grazing plan that includes 18 month (or longer) deferment of a grazing unit that consists of native or adapted grasses and/or legumes and/or perennial forbs for the purpose of meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat for a period of time.

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife will be followed.
- Enhance diversity of rangeland plants to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by a planning process that includes:



CONSERVATION STEWARDSHIP PROGRAM

- o Clear objectives,
 - o A resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
 - o Grazing plan, and
 - o A contingency plan.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- Identify species of concern in the objectives of the prescribed grazing plan.
- An area that constitutes at least 15% of the planned enhancement acreage (or a minimum of ten acres, whichever is larger) that is predominantly native grasses and/or legumes and/or perennial forbs will be deferred from any and all harvest or prescribed burning for a period of 18 months or longer. The deferment area must be a grazing unit (or located in a grazing unit) that scores a minimum of 0.5 on the state NRCS Wildlife Habitat Evaluation Guide (WHEG).
- In the event of the utilization of the wildlife refuge area as a drought/disaster contingency for prescribed grazing during the life of the contract, it must be restored or recovered or another pasture designated and deferred for 18 months following the emergency utilization.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, review NRCS Conservation Practice Standards Prescribed Grazing (Code 528) and Upland Wildlife Habitat Management (Code 645), including any state approved job sheets or work sheets.
- o Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score is to be 0.5 or greater.*
- o Prior to implementation, obtain grazing/wildlife habitat management plan specifying what species the enhancement is targeting and how grazing management is being modified to benefit that species. The written grazing plan must describe the management and harvest of vegetation with grazing and/or browsing animals, conditions creating need to implement contingency plan, and monitoring plan.
- o The grazing plan will include a minimum of 18 month rest period on 15% of enrolled acres incorporated into grazing strategy. Supporting documentation identifying baseline conditions will be based on state NRCS Conservation Practice Standard Prescribed Grazing (Code 528) specifications.
- o In the event of the utilization of the wildlife refuge area as a drought/disaster contingency for prescribed grazing during the life of the contract, it must be restored or recovered or another pasture designated and deferred for 18 months following the emergency utilization.
- o During implementation, keep actual use records (dates, time, and number of head).
- o *During and after implementation, annually submit to the NRCS field office a field log including:*



CONSERVATION STEWARDSHIP PROGRAM

- o Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - o Photos are to be taken before and after grazing (forage and livestock).*
 - o A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - o A map identifying the refuge area or areas (pasture/paddock) of offered acres.*
- o During implementation, collect monitoring data used to determine contingency activation such as precipitation, drought, fire, and flooding or forage availability. During implementation, consult with NRCS to adjust and adapt the plan to current conditions to verify the changes meet enhancement criteria. Changes to the plan will be documented in writing.*
- o After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:*
 - o Grazing/wildlife habitat management plan.*
 - o Monitoring data and actual use records.*
 - o Any documented changes to the plan as result of contingency or monitoring data.*
 - o Photos of area deferred at the start of and at the end of the 18 month deferment.*



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NRCS will:

- As needed, provide technical additional assistance to the participant as requested.
- Prior to implementation, provide and explain NRCS Conservation Practice Standards Prescribed Grazing (Code 528) and Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement, including any state approved job sheets or work sheets.
- Prior to implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model (WHAG).*

Species of Concern: _____

WHEG score before implementation (*Existing*): _____

WHEG score after implementation (*Planned*): _____

- Prior to implementation, assist the participant with development of a grazing plan, if requested. If NRCS does not assist with plan development, the plan(s) will be reviewed by NRCS for approval prior to implementation to confirm the written objectives meet the criteria of the enhancement.
- After implementation, review actual use and monitoring data used to implement grazing strategy and provide recommendations for adjustments, or additional practices to facilitate future improvements in wildlife habitat.
- During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- After implementation, review grazing plan, records, and documentation to verify the enhancement was implemented to meet the criteria.
- After implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score is to be 0.5 or greater.*

WHEG score after implementation (*Applied*): _____



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528138Z

Incorporating wildlife refuge areas in contingency plans for prescribed grazing for wildlife access to water

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range

RESOURCE CONCERN ADDRESSED: Fish & Wildlife Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

A prescribed grazing plan that includes 18 month (or longer) deferment of a grazing unit that consists of native or adapted grasses and/or legumes and/or perennial forbs for the purpose of meeting the needs for drought/disaster contingency plans that will also provide wildlife habitat for a period of time.

Criteria

- Must follow a written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife.
- Enhance diversity of pasture plants to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by a planning process that includes:
 - Clear objectives,
 - A resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,



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- Grazing plan, and
 - A contingency plan.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- Identify species of concern in the objectives of the prescribed grazing plan. Water must be available for wildlife use in the refuge area, or nearby where the refuge provides cover needed for such access.
- An area that constitutes at least 15% of the planned enhancement acreage (or a minimum of ten acres, whichever is larger) that is predominantly adapted grasses and/or legumes and/or perennial forbs will be deferred from any and all harvest or prescribed burning for a period of 18 months or longer. The deferment area must be a pasture (or located in a pasture) that scores a minimum of 0.5 on the state NRCS Wildlife Habitat Evaluation Guide (WHEG).
- In the event of the utilization of the wildlife refuge area as a drought/disaster contingency for prescribed grazing during the life of the contract, it must be restored or recovered or another pasture designated and deferred for 18 months following the emergency utilization.



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Documentation and Implementation Requirements

Participant will:

- Prior to implementation, review NRCS Conservation Practice Standards Prescribed Grazing (Code 528) and Upland Wildlife Habitat Management (Code 645), including any state approved job sheets or work sheets.
- Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG.*
- Prior to implementation, obtain grazing/wildlife habitat management plan specifying what species the enhancement is targeting and how grazing management is being modified to benefit that species. The written grazing plan must describe the management and harvest of vegetation with grazing and/or browsing animals, conditions creating need to implement contingency plan, and monitoring plan.
- The grazing plan will include a minimum of 18 month rest period on 15% of enrolled acres incorporated into grazing strategy. Supporting documentation identifying baseline conditions will be based on state NRCS Conservation Practice Standard Prescribed Grazing (Code 528) specifications.
- During implementation, keep actual use records (dates, time, and number of head).
- During implementation, collect monitoring data used to determine contingency activation such as precipitation, drought, fire, and flooding or forage availability. During implementation, consult with NRCS to adjust and adapt the plan to current conditions to verify the changes meet enhancement criteria. Changes to the plan will be documented in writing.
- After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - Grazing/wildlife habitat management plan.



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- Monitoring data and actual use records.
 - Any documented changes to the plan as result of contingency or monitoring data.
 - *Photos of area deferred at the start of and at the end of the 18 month deferment.*
- *During and after implementation, annually submit to the NRCS field office a field log including:*
- *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - *Photos are to be taken before and after grazing (forage and livestock).*
 - *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*
 - *A map identifying the refuge area or areas (pasture/paddock) of offered acres.*

NRCS will:

- o As needed, provide technical additional assistance to the participant as requested.
- o Prior to implementation, provide and explain NRCS
- o Conservation Practice Standards Prescribed Grazing (Code 528) and Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement, including any state approved job sheets or work sheets.
- o Prior to implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Use the Prairie and Grassland Community Model WHAG. Minimum score is to be 0.5 or greater.* **Species of Concern:** _____

WHEG score before implementation (Existing): _____

WHEG score after implementation (Planned): _____



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- o Prior to implementation, assist the participant with development of a grazing plan, if requested. If NRCS does not assist with plan development, the plan(s) will be reviewed by NRCS for approval prior to implementation to confirm the written objectives meet the criteria of the enhancement.
- o After implementation, review actual use and monitoring data used to implement grazing strategy and provide recommendations for adjustments, or additional practices to facilitate future improvements in wildlife habitat.
- o During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- o After implementation, review grazing plan, records, and documentation to verify the enhancement was implemented to meet the criteria.
- o After implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). *Minimum score is to be 0.5 or greater.*

WHEG score after implementation (Applied): _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E528140Z1

Maintaining quantity and quality of forage for animal health and productivity

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range, Associated Ag Land

RESOURCE CONCERN ADDRESSED: Livestock Production Limitation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Managing the harvest of vegetation with grazing and/or browsing animals for the purposes of maintaining desired pasture composition/plant vigor and improving/maintaining quantity and quality of forage for the animals' health and productivity following the recommendations of a qualifying professional, as detailed in the documentation and implementation requirements.

Criteria

- A written plan matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Removal of herbage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants, and the nutritional needs of the animals.



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- Deferments will be planned and implemented for critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).
- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.).
- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- Plan grazing and/or browsing to match forage quantity and quality goals of the producer within the capability of the resource to respond to management. Plan the intensity, frequency, timing, and/or browsing to reduce animal stress and mortality from toxic and poisonous plants.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- The Certified Consultant provided recommendations or qualified, non-affiliated consultant (see documentation requirements) will be based on the National Research Council's Nutrient Requirements of Domestic Animals.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- *Prior to and during implementation, use the Prescribed Grazing (528) conservation practice standard and posted supporting documents to meet the criteria of this enhancement.*
- *Prior to implementation, make initial target livestock performance goals and mediation actions taken available to NRCS; including reasons for no action.*
- *Prior to implementation, obtain a written plan for collecting samples, sample analysis, and corresponding management recommendations as developed and provided by a Certified Range Management Consultant, Certified Professional in Range Management, Certified Forage and Grassland Professional, NRCS Technical Service Provider approved for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in forage agronomy, range science or other closely related plant science discipline and a minimum of five years' experience in grazing lands conservation planning and grazing animal nutrition.*
- *During implementation, keep records to annually document prescribed grazing requirements are met.*
- *During implementation, annually submit to the NRCS field office a field log including:*
 - *Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.*
 - *Photos are to be taken before and after grazing (forage and livestock).*
 - *A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.*



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- *A map identifying the refuge area or areas (pasture/paddock) of offered acres.*
- After implementation, make available documentation of protein and energy of consumed forages/browse based on a land grant university laboratory analysis. The analysis may be based on collected sample of the forage available to the livestock or fecal samples analyzed with appropriate Near-infrared spectroscopy (NIRS). This analysis needs to illuminate shortfalls and/or excessive amounts of protein and energy. **Samples must be submitted in a timely manner to allow for appropriate adjustments in management and/or supplementation.**
- During implementation:
 - *Analyze forages (using either fecal samples or forage tissue sample) by an accredited land grant university laboratory.*
 - *Samples must be submitted for analysis as soon as possible after collection.*
 - *Contact the Grazing Animal Nutrition Lab (GAN Lab) at the following website: <http://cnrit.tamu.edu/qanlab> to get guidance on the collection and submission of samples.*
 - *Utilize the GAN Labs Nutritional Balance Analyzer Pro (NUTBAL Pro) software to produce a report that is used to make management and/or supplementation decisions.*
 - *Management and/or supplementation decisions are to be documented and implemented within 14 days from receiving the analysis.*
 - *A minimum of 6 forage or fecal samples must be analyzed and NUTBAL Pro reports must be completed throughout each year as long as the animals are grazing. It is best if samples are collected approximately every 2 months or during periods of nutritional stress (e.g., extreme cold or drought).*
 - *Samples are not to taken when animals are in confinement.*
- During implementation, provide for each sample that reflects the current diet and sufficiency to meet livestock nutritional needs:
 - *A copy of the forage or fecal sample analysis report.*
 - *A copy of the NUTBAL Pro reports.*



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- o Written documentation of the management and/or supplementation decisions made as a result of the analysis.*
- o After implementation, make grazing and supplementation records available for review by NRCS.

NRCS will:

- o Prior to implementation, assist the participant with development of a grazing plan if requested to do so.
- o During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- o After implementation, review forage or fecal sampling schedule and corresponding management actions taken to determine if a supplementation plan was reasonably followed.
- o After implementation, annually review documentation provided indicating that prescribed grazing specifications have been met and to verify the enhancement has been implemented.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E578139X

Stream crossing elimination

Conservation Practice 578: Stream Crossing

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial);
Pasture;

Range; Forest; Farmstead; Associated Ag Land

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 10 years

Enhancement Description

Existing stream crossings on an operation are consolidated into fewer crossings in order to reduce impacts to stream habitat.

Criteria

- Minimize the number of stream crossings through evaluation of alternative trail or travel-way locations. Assess land user operations to consolidate and reduce the number of crossings in order to minimize habitat fragmentation and to minimize barriers to aquatic organism movement.
- Evaluate proposed crossing removal sites for variations in stage and discharge, tidal influence, hydraulics, fluvial geomorphic impacts, sediment transport and flow continuity, groundwater conditions, and movement of woody and organic material. Assess the effects of removal upon the channel with respect to local site conditions and stream geomorphology, to the extent possible.



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- Road crossing removal can affect wetlands, flooding potential, existing infrastructure, and social and cultural practices and resources. Evaluate and address the full range of impacts when planning or designing removal projects.
- Replacing or removing an existing instream structure may trigger channel adjustments upstream and/or downstream of the crossing. Mitigate undesirable channel plan or profile shifts resulting from the removal of crossing.
- Return the stream to a condition to provide passage for as many different aquatic species and age classes as possible.
- Incorporate natural streambed substrates throughout the removed crossing length. Natural streambeds provide numerous passage and habitat benefits to many life stage requirements for fish and other aquatic organisms.
- Retain as much riparian and streambank vegetation as possible during crossing removal to maintain shade, riparian continuity, and sources of nutrient and structural inputs for aquatic ecosystems. Plant all areas to be revegetated as soon as practical after crossing structure removal.
- Where appropriate, consider removing associated access roads or trails and restoring native vegetation representative of the site.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, develop a written plan detailing proposed stream crossing removal and associated actions using Conservation Practice Standards Stream Crossing (Code 578), Aquatic Organism Passage (Code 396), and Streambank and Shoreline Protection (Code 580). (NRCS will provide technical assistance, as needed.)
- o Prior to implementation, obtain all necessary Clean Water Act, Section 404 permits, and other federal, state or local permits, as required.



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- o During implementation, use erosion control methods based upon specifications developed for the site.
- o Where necessary, prior to crossing structure removal, remove upstream accumulation of sediment from behind the structure.
- o Remove the structure (culvert, bridge) and associated embankment materials as much as possible from the bank with as little encroachment into the stream as possible. Where necessary, replace natural streambed rock, cobble, and gravel throughout the removed crossing length.
- o After structure removal, blend the stream bank at the former crossing into existing site topography. Use streambank soil revegetation and stabilization measures that are appropriate to maintain bank stability and prevent erosion.
- o Where appropriate, remove crossing-associated access roads or trails and restore native vegetation representative of the site.
- o During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- o After implementation, conduct inspections after high flows and undertake prompt actions if there is excessive streambank or streambed instability or erosion.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement, including NRCS engineering oversight where required.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standards Stream Crossing (Code 578), Aquatic Organism Passage (Code 396), and Streambank and Shoreline Protection (Code 580) as it relates to implementing this enhancement.
- o Prior to implementation, ensure that stream will not be actively incising or down cutting after the crossing removal.
- o Prior to implementation, ensure that all necessary Clean Water Act, Section 404, and other federal, state, or local permits have been acquired by the Participant.



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- o Prior to implementation, as needed, develop a written plan detailing proposed stream crossing removal and associated actions using Conservation Practice Standards Stream Crossing (Code 578), Aquatic Organism Passage (Code 396), and Streambank and Shoreline Protection (Code 580).
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- o After implementation, verify that the stream crossing removal and follow-up channel and streambank actions, and removal of crossing-associated access roads or trails was implemented according to the plan and specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E590118X

Reduce risks of nutrient losses to surface water by utilizing precision agriculture technologies to plan and apply nutrients

Conservation Practice 590: Nutrient Management

APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Utilize precision application technology and techniques to reduce risk of nutrients in surface water by reducing the potential for delivery of nutrients into water bodies. Precision agriculture technology is utilized to plan and apply nutrients to improve nutrient use efficiency and reduce risk of nutrient losses

Criteria

- Documentation of producer's record of nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Minimize soil surface disturbance during fertilizer placement.



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- Develop site-specific yield maps using soils data, current soil test results, and a yield monitoring system with GPS receiver to correlate field location with yield.
- Use these data to diagnose low, medium, and high productivity areas (management zones).
- Nutrient rates of application (minimum N-P-K) are planned and applied according to management zone where appropriate. Management zones are not used when utilizing in-season sensing such as crop canopy color.
- Utilize variable-rate technology for nutrient application to reduce nutrient loss risk and improve nutrient use efficiency; variable-rate technology may be map-based, sensor-based (crop canopy sensors), or manual when guided by site-specific application maps developed prior to application.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- o Prior to implementation, develop site-specific yield maps and use them to develop management zones within the field.
- o Prior to implementation, develop and document *an as-recommended map showing* the planned nutrient budget, yield goal, and applications for the field (must include at a minimum N-P-K, expressed as pounds/acre N, P₂O₅, and K₂O). *Soil testing methods and fertilizer recommendations shall follow guidance from the University of Missouri-Columbia Extension Service.* Develop planned variable-rate application layers (maps and/or tabular statistics).
- o During implementation, utilize variable-rate technology. Variable-rate technology may be map-based, sensor-based (crop canopy sensors), or manual.



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- o During implementation, keep records to document as-applied records of actual variable-rate applications (maps and/or tabular statistics).
- o During implementation, minimize soil surface disturbance during fertilizer placement.
- o During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- o After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, provide and explain NRCS conservation practice standard Nutrient Management (CPS 590) as it relates to implementing this enhancement.
- o Prior to implementation, review documentation to verify a record of implementing nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- o Prior to implementation, verify the development of site-specific yield maps used to develop management zones within the field.
- o Prior to implementation, verify the development of maps showing the planned nutrient budget, yield goal, and planned nutrient applications *in an as-recommended map. When nitrogen application is guided by in-season crop canopy color sensing the as-recommended map for nitrogen application is not needed.*
- o During implementation, evaluate any planned changes to verify the planned system meets the enhancement criteria.
- o After implementation, review documentation and records to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E590118Z

Improving nutrient uptake efficiency and reducing risk of nutrient losses to surface water

Conservation Practice 590: NUTRIENT Management

APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses.

Criteria

- Documentation of producer's record of nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- For nitrogen, phosphorus, and potassium (N-P-K), rates of application are at the agronomic application rate recommended by the land grant university.



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- Minimize soil surface disturbance during fertilizer placement.
- **Utilize two or more nutrient use efficiency strategies or technologies** to reduce nutrient loss risk and improve nutrient use efficiency. Select two or more of the strategies and technologies below:
 - Use Enhanced Efficiency Fertilizer (EEF) products with 1 or more nutrient applications.
 - Use in-season soil nitrate sampling.
 - Use in-season plant tissue sampling and analysis as a complement to soil testing.
 - Split nutrient applications.
 - Apply no more than 50% of total crop nitrogen needs within 30 days prior to planting (or in the case of hay or pasture after green-up of dormant grasses). Apply the remaining nitrogen after crop emergence (or green-up).
 - Post-emergence nitrogen may be reduced based on in-season soil sampling/analysis, or plant tissue sampling/analysis.
 - Time nutrient application timing to match nutrient uptake timing.
 - Apply nutrients no more than 30 days prior to planting date of annual crops.
 - Nutrient application placement below soil surface.
 - Fertilizer is injected or incorporated at time of application.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater. Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications of (at a minimum) N, P₂O₅, and K₂O in pounds/acre. *Follow soil test methods and fertilizer recommendations for NPK from the University of Missouri-Columbia Extension Service (based on soil test and yield goal).*
- Prior to implementation, select two or more of the nutrient use efficiency strategies or technologies.

Selections: _____

- *Nitrogen or phosphorus EEF products recommended by the University of Missouri-Columbia Extension Service (MU Extension) and concurred with by Missouri NRCS on all treatment acres supply at least 50% of the pre-emergence and early post-emergence MU Extension-recommended nitrogen or phosphorus requirements for the crop(s) grown.*
- *Nitrogen EEF products acknowledged by the University of Missouri-Columbia:*
 - *Acceptable slow-release fertilizers*
 - *Urea-formaldehyde*
 - *Magnesium-ammonium phosphate*
 - *IBDU (isobutylidene diurea)*
 - *Acceptable controlled-release fertilizers*
 - *Sulfur-coated urea*
 - *Polymer-coated urea (ESN®)*
 - *Acceptable nitrification inhibitors*
 - *Nitrapyrin (2-chloro-6-(trichloromethyl)-pyridine)*
 - *Terrazole (5-ethoxy-3-trichloroimethyl-1,2,4-thiadiazol)*



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- DCD
 - Acceptable urease inhibitors
 - NBPT (N-(n-butyl) thiophosphoric triamide)
 - There are no currently acceptable EEF phosphorus products
- When using in-season plant tissue sampling and analysis as a complement to soil testing, follow MU Extension guidelines and Missouri NRCS Agronomy Technical Note No. 35 for interpretations of the results and appropriate adjustments in the application of N and other nutrients. End-of-season stalk nitrate testing is not applicable if the enhancement is only contracted for one year, as results must be used to evaluate and adjust nutrient management in the following year, as needed.
- In-season soil nitrate testing should follow guidance in University of Missouri-Columbia Guide Sheet G9177, Preplant Nitrogen Test for Adjusting Corn Nitrogen Recommendations. Soil samples taken to the 2-ft depth are used as a credit to a nitrogen fertilizer recommendation when soil test nitrate is greater than 50 lbs. N/ac.
- Split nitrogen application is available for nitrogen on corn only.
 - Preplant applications of nitrogen shall be less than 50 percent of the annual nitrogen recommendation. The remaining nitrogen fertilizer is applied after the crop is established.
 - Preplant applications must be made no more than one month before the estimated planting date to avoid early-season losses
 - “After the crop is established” is defined as:
 - 4th – 6th leaf stage for corn or grain sorghum (milo).
 - Before jointing for wheat
 - At first square (5th or 6th node) for cotton.
 - At the beginning jointing period for rice. Follow guidance provided by the Missouri Rice Degree Day 50 (DD-50) website (<http://agebb.missouri.edu/rice/ricemodel.htm>).



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- o *Wheat:*
 - *No more than 40 pounds of N will be applied preplant or at planting with the remainder of the N applied before jointing (late February – early April).*
- o *Fall applications of anhydrous ammonia for a spring-seeded crop do not qualify as preplant applications.*
- o *Use of a urease or nitrification inhibitor or controlled-release fertilizer applied preplant or at planting does not replace the split application of nitrogen after the crop is established.*
- o *Apply nutrients no more than 30 days prior to planting date of annual crops.*
- o *Nutrient application placement below soil surface.*
- o During implementation, keep records to document actual nutrient applications of (at a minimum) N, P₂O₅, and K₂O in pounds/acre.
- o During implementation, minimize soil surface disturbance during fertilizer placement.
- o During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- o During implementation, additional record keeping requirements for specific strategy or technology:
 - In-season soil nitrate sampling. Records and documentation must include results (including reference strips) and adjustments in nutrient management based on results.
 - In-season plant tissue sampling and analysis. Records and documentation must include type of test used (stalk, leaf, chlorophyll, infrared, or other plant tissue), results (including reference strips), and adjustments in nutrient management based on results.
 - Nutrient application placement below soil surface. Records and documentation must include method of injection or incorporation and depth.
- o After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, provide and explain NRCS conservation practice standard Nutrient Management (CPS 590) as it relates to implementing this enhancement.
- o Prior to implementation, review documentation to verify a record of implementing nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- o Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications.
- o Prior to implementation, verify the selection of two or more nutrient use efficiency strategies or technologies.
- o During implementation, evaluate any planned changes to verify the planned system meets the enhancement criteria.
- o After implementation, review documentation and records to verify implementation of the enhancement.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E590119X

Reduce risks of nutrient losses to ground water by utilizing precision agriculture technologies to plan and apply nutrients.

Conservation Practice 590: Nutrient Management

APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Utilize precision application technology and techniques to reduce risk of nutrients in ground water by reducing total amount of applied and reducing the potential for delivery of nutrients into ground water. Precision agriculture technology is utilized to plan and apply nutrients to improve nutrient use efficiency and reduce risk of nutrient losses.

Criteria

- Documentation of producer's record of nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Minimize soil surface disturbance during fertilizer placement.



CONSERVATION STEWARDSHIP PROGRAM

- Develop site-specific yield maps using soils data, current soil test results, and a yield monitoring system with GPS receiver to correlate field location with yield.
- Use these data to diagnose low, medium, and high productivity areas (management zones).
- Nutrient rates of application (minimum N-P-K) are planned and applied according to management zone where appropriate. Management zones are not used when utilizing in-season sensing such as crop canopy color.
- Utilize variable-rate technology for nutrient application to reduce nutrient loss risk and improve nutrient use efficiency; variable-rate technology may be map-based, sensor-based (crop canopy sensors), or manual when guided by site-specific application maps developed prior to application.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- o Prior to implementation, develop site-specific yield maps and use them to develop management zones within the field. *Provide an explanation and justification for how management zones are defined and distinguished.*
- o Prior to implementation, develop and document *an as-recommended map* showing the planned nutrient budget, yield goal, and applications for the field (must include at a minimum N-P-K, expressed as pounds/acre N, P₂O₅, and K₂O). *Follow soil testing methods and fertilizer recommendation guidance from the University of Missouri-Columbia Extension Service.* Develop planned variable-rate application layers (maps and/or tabular statistics).



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- o During implementation, utilize variable-rate technology. Variable-rate technology may be map-based, sensor-based (crop canopy sensors), or manual.
- o During implementation, keep records to document as-applied records of actual variable-rate applications (maps and/or tabular statistics).
- o During implementation, minimize soil surface disturbance during fertilizer placement.
- o During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- o After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, provide and explain NRCS conservation practice standard Nutrient Management (CPS 590) as it relates to implementing this enhancement.
- o Prior to implementation, review documentation to verify a record of implementing nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- o Prior to implementation, verify the development of site-specific yield maps used to develop management zones within the field.
- o Prior to implementation, verify the development of maps showing the planned nutrient budget, yield goal, and planned nutrient applications in an as-recommended map. When nitrogen application is to be guided by in-season crop canopy color sensing the as-recommended map for nitrogen application is not appropriate.
- o During implementation, evaluate any planned changes to verify the planned system meets the enhancement criteria.
- o After implementation, review documentation and records to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E590119X – Reduce risks of nutrient losses to ground water by utilizing precision agriculture technologies to plan and apply nutrients

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CONSERVATION ENHANCEMENT ACTIVITY

E590119Z

CONSERVATION STEWARDSHIP PROGRAM

Improving nutrient uptake efficiency and reducing risk of nutrient losses to groundwater

Conservation Practice 590: NUTRIENT Management

APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses.

Criteria

- Documentation of producer's record of nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- For Nitrogen, Phosphorus, and Potassium (N-P-K), rates of application are to be agronomic application rate (based on soil test and yield goal).
- Minimize soil surface disturbance during fertilizer placement.
- **Utilize two or more nutrient use efficiency strategies or technologies** to reduce nutrient loss risk and improve nutrient use efficiency. Select two or more of the strategies and technologies below:

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CONSERVATION STEWARDSHIP PROGRAM

- o Use Enhanced Efficiency Fertilizer (EEF) products with 1 or more nutrient applications.
 - Nitrogen or phosphorous EEF products recommended by state Land Grant University (LGU) and concurred with by NRCS on all treatment acres to supply at least 50% of the pre-emergent and early post emergent LGU recommended nitrogen or phosphorous requirements for the crop(s) grown.
- o Use in-season soil nitrate sampling.
 - Use pre-sidedress soil nitrate test (PSNT) to determine the need and/or amount of additional nitrogen to be applied during sidedress/topdress N application. Conduct a PSNT on a selected crop (e.g. corn) to test if additional N fertilizer is needed.
- o Use in-season plant tissue sampling and analysis as a complement to soil testing.
 - Follow local LGU and/or laboratory guidelines for interpretations of the results and appropriate adjustments in the application of N and other nutrients. *End of season stalk nitrate testing is not applicable if the enhancement is only contracted for one year, as results must be used to evaluate and adjust nutrient management in the following year, as needed.*
- o Split nutrient applications.
 - Apply no more than 50% of total crop nitrogen needs within 30 days prior to planting (or in the case of hay or pasture after green up of dormant grasses). Apply the remaining nitrogen after crop emergence (or green up).
 - Post emergent nitrogen may be reduced based on crop scouting, in-season soil sampling/analysis, or plant tissue sampling/analysis.
- o Time nutrient application timing to match nutrient uptake timing.
 - Apply nutrients no more than 30 days prior to planting date of annual crops.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- ☐ Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K).
- ☐ Prior to implementation, select two or more of the nutrient use efficiency strategies or technologies. **Selections:** _____
- ☐ During implementation, keep records to document actual nutrient applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K).
- ☐ During implementation, minimize soil surface disturbance during fertilizer placement.
- ☐ During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- ☐ During implementation, additional record keeping requirements for specific strategy or technology:
 - ☐ In-season soil nitrate sampling. Records and documentation must include results (including reference strips) and adjustments in nutrient management based on results.
 - ☐ In-season plant tissue sampling and analysis. Records and documentation must include type of test used (stalk, leaf, chlorophyll, infrared, or other plant tissue), results (including reference strips), and adjustments in nutrient management based on results.
- ☐ After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ As needed, provide technical assistance to meet the criteria of the enhancement.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Nutrient Management (CPS 590) as it relates to implementing this enhancement.
- ☐ Prior to implementation, review documentation to verify a record of implementing nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- ☐ Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications.
- ☐ Prior to implementation, verify the selection of two or more nutrient use efficiency strategies or technologies.
- ☐ During implementation, evaluate any planned changes to verify the planned system meets the enhancement criteria.
- ☐ After implementation, review documentation and records to verify implementation of the enhancement.



United States Department of Agriculture

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E590130Z

Improving nutrient uptake efficiency and reducing risks to air quality – emissions of greenhouse gases (GHGs)

Conservation Practice 590: NUTRIENT Management

APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial)

RESOURCE CONCERN ADDRESSED: Air Quality Impacts

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risks to air quality by reducing emissions of greenhouse gases (GHGs).

Criteria

- Documentation of producer's record of nutrient management meeting all the conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- For Nitrogen, Phosphorus, and Potassium (N-P-K), rates of application are to be agronomic application rate (based on soil test and yield goal).
- Minimize soil surface disturbance during fertilizer placement.



CONSERVATION STEWARDSHIP PROGRAM

- **Utilize two or more nitrogen use efficiency strategies or technologies** to reduce nitrogen loss risk and improve nutrient use efficiency. Select two or more of the strategies and technologies below:
 - Use Enhanced Efficiency Fertilizer (EEF) products with 1 or more nutrient applications.
 - Nitrogen EEF products recommended by state Land Grant University (LGU) and concurred with by NRCS on all treatment acres to supply at least 50% of the preemergent and early post emergent LGU recommended nitrogen requirements for the crop(s) grown.
 - Use in-season soil nitrate sampling.
 - Use pre-sidedress soil nitrate test (PSNT) to determine the need and/or amount of additional nitrogen to be applied during sidedress/topdress N application. Conduct a PSNT on a selected crop (e.g. corn) to test if additional N fertilizer is needed.
 - Use in-season plant tissue sampling and analysis as a complement to soil testing.
 - Follow local LGU and/or laboratory guidelines for interpretations of the results and appropriate adjustments in the application of N and other nutrients. End of season stalk nitrate testing is not applicable if the enhancement is only contracted for one year, as results must be used to evaluate and adjust nutrient management in the following year, as needed.
 - Split nitrogen applications.
 - Apply no more than 50% of total crop nitrogen needs within 30 days prior to planting (or in the case of hay or pasture after green-up of dormant grasses). Apply the remaining nitrogen after crop emergence (or green-up).
 - Post emergence nitrogen may be reduced based on crop scouting, in-season soil sampling/analysis, or plant tissue sampling/analysis.



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- o Time nitrogen application timing to match nitrogen uptake timing.
 - Apply nitrogen no more than 30 days prior to planting date of annual crops.
- o Nutrient application placement below soil surface.
 - Fertilizer is injected or incorporated at time of application.
- o Use nitrification inhibitors to delay the nitrification process, by reducing the activity of the bacteria *Nitrosomonas* in the area where ammonium is to be present.
 - Materials must be defined by the Association of American Plant Food Control Officials (AAPFCO) and be accepted for use by the State fertilizer control official, or similar authority, with responsibility for verification of product guarantees, ingredients (by AAPFCO definition) and label claims.
 - Application timing, method, N source, soil texture, and tillage are all factors that should be evaluated to determine where nitrification inhibitors should be used.
 - Before buying an inhibitor make sure scientific evidence backs up all claims. Producers and/or consultants should be wary of any product that does not have solid scientific data demonstrating that the inhibitor activity matches the advertised benefit.
- o Use urease inhibitors to temporarily reduce the activity of the urease enzyme and slow the rate at which urea is hydrolyzed.
 - Materials must be defined by the Association of American Plant Food Control Officials (AAPFCO) and be accepted for use by the State fertilizer control official, or similar authority, with responsibility for verification of product guarantees, ingredients (by AAPFCO definition) and label claims.
 - Application timing, method, N source, soil texture, and tillage are all factors that should be evaluated to determine where urease inhibitors should be used. Before buying an inhibitor make sure scientific evidence backs up all



CONSERVATION STEWARDSHIP PROGRAM

claims. Producers and/or consultants should be wary of any product that does not have solid scientific data demonstrating that the inhibitor activity matches the advertised benefit.

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- o Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications of (at a minimum) N, P₂O₅, and K₂O in pounds/acre. *Follow soil testing methods and fertilizer recommendations for NPK from the University of Missouri-Columbia Extension Service (based on soil test and yield goal).*
- o Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K).
- o Prior to implementation, select two or more of the nutrient use efficiency strategies or technologies. **Selections:** _____
 - o *Nitrogen or phosphorus EEF products recommended by the University of Missouri-Columbia Extension Service (MU Extension) and concurred with by Missouri NRCS on all treatment acres supply at least 50% of the pre-emergence and early post-emergence MU Extension-recommended nitrogen or phosphorus requirements for the crop(s) grown.*
 - *Nitrogen EEF products acknowledged by the University of Missouri-Columbia:*
 - o *Acceptable slow-release fertilizers*
 - *Urea-formaldehyde*
 - *Magnesium-ammonium phosphate*



CONSERVATION STEWARDSHIP PROGRAM

- *IBDU (isobutylidene diurea)*
- o *Acceptable controlled-release fertilizers*
 - *Sulfur-coated urea*
 - *Polymer-coated urea (ESN®)*
- o *Acceptable nitrification inhibitors*
 - *Nitrapyrin (2-chloro-6-(trichloromethyl)-pyridine)*
 - *Terrazole (5-ethoxy-3-trichloroimethyl-1,2,4-thiadiazol)*
 - *DCD*
- o *Acceptable urease inhibitors*
 - *NBPT (N-(n-butyl) thiophosphoric triamide)*
- o *There are no currently acceptable EEF phosphorus products*
- o *When using in-season plant tissue sampling and analysis as a complement to soil testing, follow MU Extension guidelines and Missouri NRCS Agronomy Technical Note No. 35 for interpretations of the results and appropriate adjustments in the application of N and other nutrients. End of season stalk nitrate testing is not applicable if the enhancement is only contracted for one year, as results must be used to evaluate and adjust nutrient management in the following year, as needed.*
- o *In-season soil nitrate testing should follow guidance in University of Missouri-Columbia Guide Sheet G9177, Preplant Nitrogen Test for Adjusting Corn Nitrogen Recommendations. Soil samples taken to the 2-ft depth are used as a credit to a nitrogen fertilizer recommendation when soil test nitrate is greater than 50 lbs. N/ac.*
- o *Split nitrogen application is available for nitrogen on corn only.*
- o *Preplant applications of nitrogen shall be less than 50 percent of the annual nitrogen recommendation. The remaining nitrogen fertilizer is applied after the crop is established.*
- o *Preplant applications must be made no more than one month before the estimated planting date to avoid early-season losses*
- o *“After the crop is established” is defined as:*
 - *4th – 6th leaf stage for corn or grain sorghum (milo).*
 - *Before jointing for wheat*
 - *At first square (5th or 6th node) for cotton.*



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- *At the beginning jointing period for rice. Follow guidance provided by the Missouri Rice Degree Day 50 (DD-50) website (<http://agebb.missouri.edu/rice/ricemodel.htm>).*
- o **Wheat:**
 - *No more than 40 pounds of N will be applied preplant or at planting with the remainder of the N applied before jointing (late February – early April).*
- o *Fall applications of anhydrous ammonia for a spring-seeded crop do not qualify as preplant applications.*
- o *Use of a urease or nitrification inhibitor or controlled-release fertilizer applied preplant or at planting does not replace the split application of nitrogen after the crop is established.*
- o *Apply nutrients no more than 30 days prior to planting date of annual crops.*
- o *Nutrient application placement below soil surface.*
- o During implementation, keep records to document actual nutrient applications of (at a minimum) N, P₂O₅, and K₂O in pounds/acre.
- o During implementation, minimize soil surface disturbance during fertilizer placement.
- o During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- o During implementation, observe additional record keeping requirements for specific strategy or technology:
 - o In-season soil nitrate sampling. Records and documentation must include results (including reference strips) and adjustments in nutrient management based on results.
 - o In-season plant tissue sampling and analysis. Records and documentation must include type of test used (stalk, leaf, chlorophyll, infrared, or other plant tissue), results (including reference strips), and adjustments in nutrient management based on results.
 - o Nutrient application placement below soil surface. Records and documentation must include method of injection or incorporation and depth.



CONSERVATION STEWARDSHIP PROGRAM

- o After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- o As needed, provide technical assistance to meet the criteria of the enhancement.
- o Prior to implementation, provide and explain NRCS conservation practice standard Nutrient Management (CPS 590) as it relates to implementing this enhancement.
- o Prior to implementation, review documentation to verify a record of implementing nutrient management meeting all NRCS conservation practice standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- o Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications.
- o Prior to implementation, verify the selection of two or more nutrient use efficiency strategies or technologies.
- o During implementation, evaluate any planned changes to verify the planned system meets the enhancement criteria.
- o After implementation, review documentation and records to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E595116X

CONSERVATION STEWARDSHIP PROGRAM

Reduce risk of pesticides in surface water by utilizing precision pesticide application techniques

Conservation Practice 595: Integrated Pest Management

APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Utilize precision application techniques to reduce risk of pesticides in surface water by reducing total amount of chemical applied and reducing the potential for delivery of chemicals into water bodies.

Criteria

- Documentation of producer's record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria
- Use of GPS is required to document application and site-specific compliance with all label requirements for controlling non-target application.
- Utilize one or more of the following techniques to reduce the total amount of chemical applied and reduce the potential for delivery of chemicals into water bodies:
 - Precision guidance system which reduces ground or aerial spray overlap to less than 12 inches



- o Variable rate technology (VRT) which allows rate of pesticide application to dynamically change for site specific applications

- o “Smart sprayer” technology which utilizes automatic sensors and computer controlled nozzles to turn individual nozzles on and off

CONSERVATION STEWARDSHIP PROGRAM



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide documentation of implementation of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria and additional criteria to prevent or mitigate off-site pesticide risks to water quality from leaching, solution runoff, and adsorbed runoff losses.
- ☐ During implementation, keep records of applications using the selected technology with maps and/or tabular data.
- ☐ After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
 - ☐ As applied records of actual applications using the selected technology (maps and/or tabular statistics).

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (CPS 595) as it relates to implementing this enhancement.
- ☐ As needed, provide technical additional assistance to the participant as requested.
- ☐ After implementation, verify implementation of the enhancement, by reviewing records created during enhancement implementation.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Acres Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E595116Z

CONSERVATION STEWARDSHIP PROGRAM

Reduce risk of pesticides in surface water by utilizing IPM PAMS techniques

Conservation Practice 595: Integrated Pest Management

APPLICABLE LAND USE: Crop (annual & mixed), Crop (perennial), Pasture

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Utilize integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques to reduce risk of pesticides in surface water and reducing the potential for delivery of chemicals into water bodies.

Criteria

- Documentation of producer's record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria
- Utilize ***at least four activities from techniques below:***
 - Prevention activities include cleaning equipment and gear when leaving an infested area, using pest-free seeds and transplants, and irrigation scheduling to limit situations that are conducive to disease development.
 - Avoidance activities include maintaining healthy and diverse plant communities, using pest resistant varieties, crop rotation, and refuge management.



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- o Monitoring activities include pest scouting, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments.
- o Suppression activities include judicious use of cultural, mechanical, biological and chemical control methods that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide documentation for review showing producer's record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria.
- ☐ During implementation, keep documentation, such as records, plans, receipts, showing the implementation of the activities selected.
- ☐ After implementation, make documentation available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (CPS 595) as it relates to implementing this enhancement.
- ☐ As needed, provide technical assistance to the participant as requested.
- ☐ After implementation, verify implementation by reviewing records kept during enhancement implementation.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Acres Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E595116Z2

CONSERVATION STEWARDSHIP PROGRAM

Reducing routine neonicotinoid seed treatments on corn and soybean crops

Conservation Practice 595: Integrated Pest Management

APPLICABLE LAND USE: Crop (annual)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Eliminate routine use of neonicotinoid seed treatments to reduce risk of pesticides in surface water by reducing the total amount of chemical applied and reducing the potential for delivery of chemicals into water bodies that would impair water quality and fish and wildlife habitat.

Criteria

- o Participants may not use neonicotinoid insecticidal seed treatments during planting for the length of the contract.
- o Neonicotinoid seed treatments to corn or soybean cannot be replaced with another routine treatment, such as an in-furrow application of another insecticide for at least three weeks after planting.
- o If a participant determines after contracting that a targeted neonicotinoid seed treatment or other early season treatment is necessary on a contracted soybean or corn field (i.e., within three weeks of planting), the participant will not be penalized, but will forego an incentive payment provided he or she can provide documentation of needed control (e.g. scouting report).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, provide documentation for review showing the participant used neonicotinoid seed treatments prior to the implementation of this enhancement.
- o During implementation, keep records to demonstrate:
 - Fields pest history reports have been reviewed, or fields have been scouted by a qualified professional and determined to not need neonicotinoid seed treatments. Qualified professional must be a Certified Crop Advisor, Cooperative Extension Agent, Technical Service Provider etc.
 - Copies or photos of seed labels that document all applied seed coatings did not include neonicotinoid insecticides for seed planted.
 - Receipts of seed purchase with purchase dates clearly indicated.
 - Date(s) of planting(s).
 - Maps must clearly indicate where seed was planted.
- o After implementation, make the records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

As needed, provide technical additional assistance to the participant as requested. After implementation, verify records kept during enhancement implementation.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

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CONSERVATION ENHANCEMENT ACTIVITY

E595129Z

CONSERVATION STEWARDSHIP PROGRAM

Reduce ozone precursor emissions related to pesticides by utilizing IPM PAMS techniques

Conservation Practice 595: Integrated Pest Management

APPLICABLE LAND USE: Crop (annual & mixed); Crop (perennial); Pasture; Range; Forest

RESOURCE CONCERN ADDRESSED: Air Quality Impacts

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Utilize integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques to reduce ozone precursor emissions related to pesticides.

Criteria:

- Documentation of producer's record of integrated pest management meeting all Integrated Pest Management (595) general criteria
- Utilize **at least four activities from the techniques below:**
 - Prevention activities include cleaning equipment and gear when leaving an infested area, attracting natural enemies, using resistant varieties, pest-free seeds and transplants, properly storing pesticides, and irrigation scheduling to limit situations that are conducive to disease development.
 - Avoidance activities include maintaining healthy and diverse plant communities, using pest resistant varieties, crop rotation, and refuge management.



CONSERVATION STEWARDSHIP PROGRAM

- o Monitoring activities include pest scouting both pests and beneficial organisms, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments.
- o Suppression activities include judicious use of cultural, mechanical/physical, biological and chemical control methods that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms. Optimizing application timing, using precision application equipment, or substituting lower risk pesticides. When selecting an activity include at least one suppression activity to reduce emissions of ozone precursors, such as choosing low-emission application methods, selecting alternatives or avoiding use of emulsifiable concentrate (EC) formulations, use of precision application, solarization, or biofumigants.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, provide documentation for review showing producer's record of integrated pest meeting all Integrated Pest Management (595) general criteria.
- ☐ During implementation, keep documentation, such as records, plans, receipts, showing the implementation of the activities selected.
- ☐ After implementation, make documentation available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (CPS 595) as it relates to implementing this enhancement.
- ☐ As needed, provide technical additional assistance to the participant as requested.
- ☐ After implementation, verify implementation by reviewing records kept during enhancement implementation.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Acres Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E612126Z

Cropland conversion to trees or shrubs for long term improvement of water quality

Conservation Practice 612: TREE/SHRUB ESTABLISHMENT

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Cropland conversion to trees and shrubs for long term erosion control and improvement of water quality. Trees and shrubs are established on cropland where annually-seeded cash crops have been grown. Tree and/or shrub species are selected for their efficacy in holding soil, and the planting design is configured to control runoff and trap sediment.

Criteria

- Current land use must be cropland. Soil must have been cultivated for crop production at least once within the last three years.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to NRCS Conservation Practice Standard (CPS) Tree/Shrub Site Preparation (Code 490).
- A combination of tree and shrub species will be used. Species will be adapted to site conditions and selected for their extensive, spreading root systems, rapid establishment, and tolerance for pollutants, nutrients, or contaminants contained in runoff or soils at the site.
- No plants on the Federal or state noxious weeds list shall be planted.
- Only viable, high-quality and adapted planting stock or seed will be used.



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- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Tree or shrub arrangement and spacing will be designed specifically to intercept runoff and trap sediment. The establishment phase will include other forms of erosion control as needed (e.g., mulch, filter fabric) until plantings have achieved the desired purpose of controlling erosion and improving water quality.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival.
- The seeding and/or planting will be protected from plant and animal pests (i.e. feral pigs, wild deer, wildlife or livestock). Refer to NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression.
- The seeding and/or planting will be protected from fire. Refer to NRCS CPS Fuel Break (Code 383) to assist with site-specific strategies for fire pre-suppression, protection and monitoring.
- Each site will be evaluated to determine if mulching, supplemental water or other cultural treatments (e.g., tree protection devices, shade cards, brush mats) will be needed to assure adequate survival and growth.
- Evaluate residual chemical carryover prior to planting. Alter species selection and/or timing of planting/seeding to achieve adequate seed germination and/or seedling establishment.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS Conservation Practice Standard (CPS) Tree/Shrub Site Preparation (Code 490). (NRCS will provide technical assistance *including job sheet JS-MO490*, as needed.)
- Prior to implementation, select a combination of tree and shrub species selected for their extensive, spreading root systems, rapid establishment, and tolerance for pollutants, nutrients, or contaminants contained in runoff or soils at the site *following NRCS CPS Tree/Shrub Establishment (Code 612)*. (NRCS will provide technical assistance *including job sheet JS-MO612*, as needed.)

Species	Note specific species characteristic(s)
	<i>Refer to JS-MO612</i>

- Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions *referring to JS-MO612* (NRCS will provide technical assistance, as needed.)

Planting Date	<i>Refer to JS-MO612</i>
Planting Technique	<i>Refer to JS-MO612</i>
Arrangement and Spacing	<i>Refer to JS-MO612</i>

- During implementation, use *and maintain* forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.



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- o During implementation, protect the planting from plant and animal pests and fire *and monitor the planting to determine if mulching, watering, or other treatments will be needed to optimize survival.*

NRCS will:

- o Prior to implementation, verify the enhancement is planned for cropland.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement *and provide job sheet JS-MO490.*
- o *Prior to implementation* verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) *by completing JS-MO490.*
 - o Selecting a combination of tree and shrub species *based on landowner objectives, the Conservation Tree and Shrub Suitability Group, and the applicable Ecological Site Description.*
 - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions *and provide Tree and Shrub establishment job sheet JS-MO612.*
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.



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- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned trees and shrub species were established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E612130Z

Planting for high carbon sequestration rate

Conservation Practice 612: TREE/SHRUB ESTABLISHMENT

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial), Pasture, Range, Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN ADDRESSED: Air Quality Impacts

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant tree species and use stocking levels for higher growth to increase the rate of carbon sequestration (capture). Use species with a longer life span as well as relatively fast growth, and species suitable for durable manufactured products. Increase stocking levels in forests that are not fully stocked. Implement afforestation on appropriate open lands.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Trees and shrubs will be selected for their rate of growth and suitability for use in durable manufactured products as well as their adaptability to site conditions. Refer to state lists.
- Trees and shrubs will be planted on selected areas within any land use.
- Trees and shrubs will be planted in areas with adequate sunlight. If plantings are used to supplement stocking within existing forested acreages, plant trees where light



CONSERVATION STEWARDSHIP PROGRAM

conditions are suitable. Planting rates will follow State NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612).

- No plants on the Federal or state noxious weeds list, or plants known to be aggressive and/or potentially invasive in the local area, shall be planted.
- Planting or seeding rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.
- Only viable, high-quality and adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Air and Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS Conservation Practice Standard (CPS) Tree/Shrub Site Preparation (490). (NRCS will provide technical assistance *including job sheet JS-MO490*, as needed.)
- Prior to implementation, select a combination of trees and shrubs for a longer life span as well as relatively fast growth, and suitability for production of durable manufactured products, and their adaptability to site conditions *following NRCS CPS Tree/Shrub Establishment (Code 612)*. (NRCS will provide technical assistance *including job sheet JS-MO612*, as needed.)
- *Prior to implementation, work with NRCS for technical assistance to plan the planting rate at the highest recommended general rate for hardwood trees (544 per acre) and include trees that have a rapid rate of growth and/or are suitable for use in durable manufactured products. Select from the following list*:*

Fast Growth	Durable Manufactured Products
Eastern Cottonwood	Black Walnut
Silver Maple	Northern Red Oak
Pin oak	Black Oak
Tulip Poplar	White Oak
American Sycamore	Swamp White Oak
River Birch	Bur Oak
Hackberry	Black Cherry
Bald Cypress	Hickory (sp)

*or other species if approved by the Area Forester



CONSERVATION STEWARDSHIP PROGRAM

Species	Note selected species characteristic(s)
	<i>Refer to JS-MO612</i>

- o Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site light and soil conditions. (NRCS will provide technical assistance *and job sheet JS-MO612*, as needed.)

TASK	Species	Species	Species
Planting Date	<i>Refer to JS-MO612</i>		
Planting Technique	<i>Refer to JS-MO612</i>		
Arrangement and Spacing	<i>Refer to JS-MO612</i>		

- o During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)
- o During implementation, protect plantings from competition from invasive plants.
- o During implementation, protect the planting from plant and animal pests and fire *and monitor the planting to determine if mulching, watering, or other treatments will be needed to optimize survival.*
- o During implementation, notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

NRCS will:

- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement *by providing job sheet JS-MO490.*
- o *Prior to implementation*, verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.



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- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement *by providing job sheet JS-MO612.*
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) *by completing JS-MO490.*
 - o Selecting a combination of tree and shrub species *based on landowner objectives, the Conservation Tree and Shrub Suitability Group, and the applicable Ecological Site Description.*
 - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions *and provide Tree and Shrub establishment job sheet JS-MO612.*
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned trees and shrub species were established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.



United States Department of Agriculture

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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E612132Z

Establishing tree/shrub species to restore native plant communities

Conservation Practice 612: Tree/Shrub Establishment

APPLICABLE LAND USE: Forest; Range; Associated Ag Land

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 15 YEARS

Enhancement Description:

Establish trees and/or shrubs to restore elements of plant diversity that have been lost through past diseases or improper management. For example, disease-resistant varieties of elm and chestnut can be established to restore the ecological functions of American elm and American chestnut. At the stand level, past forest management may have eliminated certain native tree species. Restoring stand-level diversity and function addresses a wide array of resource concerns and strengthens ongoing management activities. This enhancement improves a forest that is already in good condition by increasing plant diversity, and improving health and vigor through adding plants with resistance to disease, pests, or other local hazards. Additional benefits include contributing to carbon storage, and providing diversity in wildlife habitat and food sources.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard (CPS) Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.



CONSERVATION STEWARDSHIP PROGRAM

- Trees/shrubs selected for planting will be adapted to site conditions and suited for the restoration of stands where past impacts of disease and/or pests has reduced species diversity.
- No trees on the Federal or state noxious weeds list, or trees known to be aggressive and/or potentially invasive in the local area, shall be planted.
- A minimum of three different species of trees and/or shrubs should be planted. An exception is in situations where a lost species is being restored to a fully-stocked forest stand (i.e., American elm, American chestnut).
- Trees/shrubs selected must be of good quality. Only viable, high-quality and adapted planting stock or seed will be used.
- Proper planting dates and care in handling and planting the trees/shrubs will ensure an acceptable rate of survival.
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Planting density will be adequate to accomplish the long-term goal for the property.
- Survival surveys must be conducted to determine if targeted goals are met.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Refer to criteria in NRCS CPS Integrated Pest Management (Code 595) to assist with site specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants and other environmental stressors.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS CPS Tree/Shrub Site Preparation (Code 490) *and refer to job sheet JS-MO490*. (NRCS will provide technical assistance, as needed.)
- o Prior to implementation, select a combination of at least three native tree and shrub species that will increase plant and stand diversity and use plants with established resistance to known disease, pests, or other local hazards *following job sheet JS-MO612*. (NRCS will provide technical assistance, as needed.)

Species	Note specific species characteristic(s)
	<i>Refer to JS-MO612</i>

- o Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions *following JS-MO612*. (NRCS will provide technical assistance, as needed.)

Planting Date	<i>Refer to JS-MO612</i>
Planting Technique	<i>Refer to JS-MO612</i>
Arrangement and Spacing	<i>Refer to JS-MO612</i>

- o During implementation, use and maintain forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- o During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- o During implementation, protect the planting from plant and animal pests and fire and monitor the planting to determine if mulching, water, or other treatments will be needed to optimize survival.



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NRCS will:

- o Prior to implementation, verify the land use planned for this enhancement.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement *and provide job sheet JS-MO490.*
- o *Prior to establishment*, verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment *following JS-MO490.*
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.

- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) *by completing JS-MO490.*
 - o Selecting a combination of tree and shrub species *based on landowner objectives, the Conservation Tree and Shrub Suitability Group, and the applicable Ecological Site Description planning a minimum of 3 species.*
 - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions *and provide Tree and Shrub establishment job sheet JS-MO612.*
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned native trees and shrub species were established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests and fire.



CONSERVATION STEWARDSHIP PROGRAM

- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E612133X1

Adding food-producing trees and shrubs to existing agroforestry plantings

Conservation Practice 612: TREE/SHRUB ESTABLISHMENT

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant food-producing trees and shrubs for wildlife or human consumption within windbreaks, alley cropping, multi-story cropping, silvopasture systems, and/or riparian forest buffers.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Plant tree, shrub, and bramble species that produce food and/or culinary items to create an edible landscape. See State lists for suitable woody plants.
- Apply at least one of the following activities, within existing windbreaks, alley cropping, multi-story cropping, silvopasture systems, and/or riparian forest buffers, to improve edible food production:



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- o Add at least one edible, food producing row to existing linear plantings.
- o Add clusters of food-producing plants to existing plantings, so that food plants occupy at least 10% of the total area established in an agroforestry practice.
- o Add food-producing plants to occupy idle areas of the operation, such as field corners adjacent to existing plantings.
- Plant a variety of tree, shrub and bramble species (3 or more, using native species whenever possible) with varying flowering times to favor pollinator species and to provide an extended time frame for available food.
- Trees and shrubs will be planted on selected areas within any land use that contains an agroforestry installation. Groupings of trees and shrubs will be designed for best growth. Further considerations are visual appeal, proximity to farmsteads, proximity to areas of wildlife use or viewing, or other locations depending on landowner objectives.
- Maximize planting space by creating vertical structure with varying plant heights and plant sizes.
- Minimize herbicide use. Use spot weed treatments and avoid spraying when flowers are present.
- No plants on the Federal or state noxious weeds list, or plants known to be aggressive in the local area, shall be planted.
- Planting rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.
- Only viable, high-quality and adapted planting stock will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique, type of planting stock, and timing will be appropriate for the site and soil conditions.
- Refer to criteria in NRCS CPS Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants.



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- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS Conservation Practice Standard (CPS) Tree/Shrub Site Preparation (490) *and job sheet JS-MO490*. (NRCS will provide technical assistance, as needed.)
- Prior to implementation, select the required number and diversity of tree and shrub species (preference for native edible food plants) that will increase food and forage production for wildlife and humans *and follow job sheet JS-MO612*. (NRCS will provide technical assistance, as needed.)

Species	Note specific species characteristic(s)
	<i>Refer to JS-MO612</i>

- Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions *following job sheet JS-MO612*. (NRCS will provide technical assistance, as needed.)

Planting Date	<i>Refer to JS-MO612</i>
Planting Technique	<i>Refer to JS-MO612</i>
Arrangement/Spacing	<i>Refer to JS-MO612</i>

- During implementation, use forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- During implementation, protect the planting from plant and animal pests and fire *and monitor the planting to determine if mulching, water or other treatments will be needed to optimize survival*.



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NRCS will:

- Prior to implementation, verify the enhancement is planned for the appropriate land use.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement *and provide job sheet JS-MO490.*
- *Prior to implementation*, verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement *and provide job sheet JS-MO612.*
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) *by completing JS-MO490.*
 - Selecting a combination of tree and shrub species *based on landowner objectives, the Conservation Tree and Shrub Suitability Group, and the applicable Ecological Site Description.*
 - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions *and provide Tree and Shrub establishment job sheet JS-MO612.*
 - Planning the use of additional erosion control, as needed for the site.
 - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.



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- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned native trees and shrub species were established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E612133X2

Cultural plantings

Conservation Practice 612: TREE/SHRUB ESTABLISHMENT

APPLICABLE LAND USE: Pasture, Range, Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant trees and shrubs that are of cultural significance, such as those species utilized by Tribes in traditional practices, medicinal plants, species used in basket-making, etc. (e.g., paper birch, slippery elm, witch hazel).

Criteria

- States will apply general criteria from the NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Refer to NRCS Conservation Practice Standard Multi-Story Cropping (Code 379) for guidance when cultivating plants under a forest canopy.
- Trees and shrubs will be selected for their cultural importance and their adaptability to site conditions.
- No plants on the Federal or state noxious weeds list shall be planted.
- Planting or seeding rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.



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- Only viable, high-quality and adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, prepare the planned acres of cultural tree and shrub establishment. Refer to NRCS Conservation Practice Standard (CPS) Tree/Shrub Site Preparation (Code 490). (NRCS will provide technical assistance *including job sheet JS-MO490*), as needed.
- Prior to implementation, select a combination of tree and shrub species selected for their cultural importance and their adaptability to site conditions.

Species	Cultural Significance and or Use
	<i>Refer to JS-MO612</i>

- Prior to implementation, select a planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions referring to *JS-MO612*. (NRCS will provide technical assistance as needed.)

Task	Description	Planting Date
Planting Technique	<i>Refer to JS-MO612</i>	
Arrangement and Spacing	<i>Refer to JS-MO612</i>	

- Prior to implementation, determine types of tree and shrub protection that may be needed to prevent damage from plant and animal pests.
- During Implementation, protect the planting from plant and animal pests and fire *and monitor the planting to determine if mulching, water, or other treatments will be needed to optimize survival.*
- During implementation *use and* maintain all erosion control needed for the site.
- During implementation notify NRCS of any changes to verify they meet the enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

- o After Implementation, notify NRCS that the planting and other measures are complete.

NRCS Will:

- o Prior to implementation, verify the enhancement is for acres that have been appropriately prepared for tree/shrub establishment. Refer to NRCS Conservation Practice Standard Tree and Site Preparation (Code 490) *and provide jobsheet JS-MO490.*
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- o Prior to implementation, verify no plants on the Federal or state noxious weeds list are included in the planning combination and that the cultural significance and use is documented.
- o Prior to implementation verify that all species are native to the state and adaptable to the site.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) *by completing JS-MO490.*
 - o Selecting a combination of tree and shrub *species based on landowner objectives, the Conservation Tree and Shrub Suitability Group, and the applicable Ecological Site Description.*
 - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions *and provide Tree and Shrub establishment job sheet JS-MO612.*
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.



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- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After Implementation, verify the planned trees/shrubs species have been established to specifications developed for the site.
- o After implementation, verify the planting is protected from pest and fire.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E612136Z

Tree/shrub planting for wildlife food

Conservation Practice 612: TREE/SHRUB ESTABLISHMENT

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial), Pasture, Range, Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 15 years

Enhancement Description

Tree and shrub planting will enhance habitat for native wildlife. A minimum of five tree and shrub species will be used; they will be species that provide food for identified wildlife species.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Trees and shrubs will be selected for their importance in providing food for wildlife, and their adaptability to site conditions. Refer to state lists.
- Select a minimum of five species of trees and shrubs, with at least one tree species and one shrub species (i.e., one tree and four shrubs; two trees and three shrubs; three trees and two shrubs; four trees and one shrub).
- Trees and shrubs will be planted on selected areas within any land use. Groupings of trees and shrubs will be designed for best growth, visual appeal, proximity to areas of wildlife use, or other locations depending on landowner objectives.



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- Trees and shrubs will be planted in areas with adequate sunlight. If plantings are used in forested settings, plant in canopy openings. Planting rates will follow State NRCS CPS Tree/Shrub Establishment (Code 612).
- No plants on the Federal or state noxious weeds list, or plants known to be aggressive in the local area, shall be planted.
- Planting or seeding rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.
- Only viable, high-quality and adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Refer to criteria in NRCS CPS Integrated Pest Management (Code 595) to assist with site specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.



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Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS *Conservation Practice Standard (CPS) Tree/Shrub Site Preparation (Code 490)*. (NRCS will provide technical assistance *including job sheet JS-MO490*, as needed.)
- o Prior to implementation, select a combination of tree and shrub *species (minimum of 5 species)* for their importance in providing food for native wildlife, and their adaptability to site conditions. (NRCS will provide technical assistance *including job sheet JS-MO612*, as needed.)
- o Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions *referring to JS-MO612*. (NRCS will provide technical assistance, as needed.)

Species/Type (tree or shrub)	Number	Planting Date	Planting Technique	Spacing	Note wildlife habitat requirements/characteristic(s)



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, use *and maintain* forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- During implementation, notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.
- During implementation, protect the planting from plant and animal pests and fire *and monitor the planting to determine if mulching, water, or other treatments will be needed to optimize survival.*

NRCS will:

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement *and provide jobsheet JS-MO490.*
- *Prior to implementation*, verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement. Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) *by completing JS-MO490.*
 - Selecting a combination of tree and shrub species *based on landowner objectives, the Conservation Tree and Shrub Suitability Group, and the applicable Ecological Site Description.*
 - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions *and provide Tree and Shrub establishment job sheet JS-MO612.*
 - Planning the use of additional erosion control, as needed for the site.



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- ☐ Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the planned trees and shrub species were established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests and fire.
- ☐ After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E612137Z

Tree/shrub planting for wildlife cover

Conservation Practice 612: TREE/SHRUB ESTABLISHMENT

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial), Pasture, Range, Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Tree and shrub planting will enhance habitat for native wildlife. A minimum of five tree and shrub species will be used; they will be species that provide cover for identified wildlife species.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Trees and shrubs will be selected for their importance in providing cover for wildlife, and their adaptability to site conditions. Refer to state lists.
- Select a minimum of five species of trees and shrubs, with at least one tree species and one shrub species (i.e., one tree and four shrubs; two trees and three shrubs; three trees and two shrubs; four trees and one shrub).
- Trees and shrubs will be planted on selected areas within any land use. Groupings of trees and shrubs will be designed for best growth, visual appeal, proximity to areas of wildlife use, or other locations depending on landowner objectives.



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- Trees and shrubs will be planted in areas with adequate sunlight. If plantings are used in forested settings, plant in canopy openings. Planting rates will follow State NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612).
- No plants on the Federal or state noxious weeds list, or plants known to be aggressive in the local area, shall be planted.
- Planting or seeding rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.
- Only viable, high-quality and adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS Conservation Practice Standard Tree/Shrub Site Preparation (490). (NRCS will provide technical assistance *and complete jobsheet JS-MO490*, as needed.)
- o Prior to implementation, select the required number and diversity of tree and shrub species (preference for native plants) that will increase habitat cover for wildlife. (NRCS will provide technical assistance, as needed.)

Species/Type (Tree/Shrub)	Number	Planting Date	Planting Technique	Spacing	Note wildlife habitat requirements/characteristic(s)

- o Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)
- o During implementation, use forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- o During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.



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- o During implementation, protect the planting from plant and animal pests and fire *and monitor the planting to determine if mulching water, or other treatments will be needed to optimize survival.*

NRCS will:

- o Prior to implementation, verify the enhancement is planned for the appropriate land use. Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement *and provide job sheet JS-MO490.*
- o *Prior to implementation*, verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- o As needed, prior to implementation, NRCS will provide technical assistance:
 - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) *by completing JS-MO490.*
 - o Selecting a combination of tree and shrub *species based on landowner objectives, the Conservation Tree and Shrub Suitability Group, and the applicable Ecological Site Description.*
 - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions *and provide Tree and Shrub establishment job sheet JS-MO612.*
 - o Planning the use of additional erosion control, as needed for the site.
 - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.



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- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned native trees and shrub species were established to specifications developed for the site.
- o After implementation, verify the planting is protected from pests and fire.
- o After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E643139X

Creating native plant refugia

Conservation Practice 643: Restoration and Management of Rare or Declining Habitats

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 1 year

Enhancement Description

Provide protection from adverse environmental conditions to create refugia for documented occurrences of sensitive plant communities.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Restoration and Management of Rare or Declining Habitats (Code 643) as listed below, and additional criteria as required by the NRCS State Office.
- All necessary local, state, and federal permits shall be obtained by the landowner (or designee) prior to the constructing the refugia.
- Sites where refugia will be designated are those that: 1) currently harbor plant species listed by the State as State Endangered, State Threatened, State Sensitive (or similar designation), or other native plant species determined to be in decline, or, 2) provide an appropriate ecological site for rescuing these plant species if relocation is needed.



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- Specific location, size, shape, and number of refugia will be based on occurrences of sensitive plants or plant communities, and/or on the existence of environmental conditions suitable for the rescue of sensitive plants whose habitat will be destroyed. The size of refugia is also affected by site features (e.g., slope, rock outcrops, water bodies, etc.).
- Refugia sites will be protected from adverse environmental impacts, including trampling by humans, using an 8 foot high woven wire fence and appropriate signage, with a locked gate to provide access for management. Each installation shall be at least $\frac{1}{4}$ acre in size.
- A forested area surrounding refugia will be large enough to provide a buffer from wind and temperature effects of adjacent non-forested areas.
- Methods used during refugia construction shall be designed to protect the soil resource from erosion and compaction, and to protect the plant community from adverse impacts.
- Invasive plant and animal species and noxious weeds shall be controlled in and around the refugia. When possible, control will be limited to that necessary to control undesirable species while still protecting habitat that benefit native pollinators and other fish and wildlife species that depend on the site for food, cover, and water.
- Undisturbed areas shall be conserved on a sufficient extent of the area surrounding refugia to sustain typical plant communities and help protect the refugia.
- Plants rescued and brought to refugia for protection will be those species ecologically adapted to site conditions, in quantities appropriate for best survival, which will not displace desired existing vegetation.
- Site preparation, planting dates and methods, and plant care and handling shall optimize vegetation survival and growth.
- A pretreatment assessment of the targeted habitat will be conducted to provide a baseline for comparison with post-treatment habitat conditions. Goals or success criteria will be established using reference sites for guidance and comparison. Where



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no such reference site exists, use ecological site descriptions or historic data to establish goals.

- Use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose of this practice.
- Use criteria in other NRCS Conservation Practice Standards to facilitate the restoration and management of rare and declining habitats as appropriate for the site. Depending on site conditions and natural disturbance regimes, these may include: Fence (Code 382); Access Control (Code 472); Brush Management (Code 314); Herbaceous Weed Control (Code 315); and Tree and Shrub Establishment (Code 612).



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Documentation and Implementation Requirements:

Participant will:

- o Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- o Prior to implementation, obtain documentation from the appropriate State agency that the site:
 - o has plant species listed by the State as State Endangered, State Threatened, State Sensitive (or similar designation), or other native plant species determined to be in decline, or,
 - o provides an appropriate ecological setting for rescuing such plants that need relocation due to imminent threat(s).
- o *Prior to implementation, State Endangered, State Threatened, or State Sensitive plant species and/or plant communities should be identified using the Missouri Heritage Database and/or the 2018 Missouri Species and Communities of Conservation Concern Checklist located here: https://nature.mdc.gov/sites/default/files/downloads/2018_SOCC.pdf. Ecological Site Descriptions found in Section II/Soil Interpretations and Reports/Ecological Site Assessment of the Missouri NRCS FOTG may also be used to determine plant communities and identify appropriate refugia locations that may be present, and to help select plant species that could be planted.*
- o Prior to implementation, obtain site-specific designs for refugia, including locations and dimensions, timing of construction, and appropriate routes for bringing materials to the site. Coordinate the design with the appropriate State agency and obtain documentation that the design will provide protection for the intended plant species. Have documentation available for NRCS review. *In Missouri, use the Restoration and Management of Rare or Declining Habitats (643) conservation practice standard, the Native Forb Information Sheet (IS-MO643 Native Forb), and posted supporting Field Office Technical Guide (FOTG) documents as guidance.*



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- o *Prior to implementation, if seeding or relocating a sensitive species, use specifications for the appropriate natural community within the Wildlife and Pollinators Planting Job Sheet (JS-MO645 Wildlife and Pollinator Plantings) for criteria to be completed for site preparation and plant establishment.*
- o Prior to implementation, develop a monitoring plan in cooperation with the responsible State agency and obtain documentation that the monitoring plan is designed to address knowledge gaps in managing the plan species. Have documentation available for NRCS review.
- o Prior to implementation, develop a plan for protecting resources during refugia construction. The plan will address resource concerns including potential soil damage, introduction of invasive species, and water quality related to road and trail use.
- o Prior to implementation, arrange workers and materials for refugia construction. During implementation, follow the plan for protecting resources during refugia construction.
- o *During implementation, create one or more refugia sites that are at least ¼ acre in size. Protect refugia sites with an 8 foot high woven wire fence with a locked gate to provide access for management. Provide at least a 60 foot buffer between refugia site and non-forested areas.*
- o After implementation, follow the monitoring plan.
- o After implementation, maintain other suitable areas within the forest stand, and/or in adjacent stands, to allow the desired plant species to expand their populations.
- o After implementation, if the use of pesticides or other chemicals are being considered, coordinate with the appropriate State agency to ensure that refugia plants will not be harmed. *Following consultation, appropriately labeled herbicides may be used to control invasive or noxious species in and around refugia using spot spraying application(s) only.*
- o *During and after implementation, schedule any management activities outside of the primary nesting period (May 1 to July 15).*
- o *After implementation, take and provide for review, photographs as documentation of refugia area condition. The participant will take photos of the site within 2 weeks of the planting date (preferably taken on the day of planting) to demonstrate that proper seedbed prep was accomplished prior to planting. Photos will also be taken to demonstrate that establishment maintenance (mowing) has occurred. If no planting*



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was needed, photos will be taken to document current conditions. For all following fiscal years of the contract, photos will be taken to document that the habitat areas are being maintained, protected, and are establishing. Photos will be preferably taken during the growing season showing blooming plants.

NRCS will:

- o Prior to implementation, verify the enhancement is planned for the appropriate land use.
- o Prior to implementation, verify participant documentation that the site: has plant species listed by the State as State Endangered, State Threatened, State Sensitive (or similar designation), or other native plant species determined to be in decline, or,
- o Provides an appropriate ecological setting for rescuing such plants that need relocation due to imminent threat(s).
- o Verify that any additional state NRCS requirements have been met.
- o Prior to implementation, verify documentation that the responsible State agency has approved refugia design as providing appropriate protection for the intended plant species. Prior to implementation, verify documentation that the responsible State agency has approved a monitoring plan.
- o As needed, prior to implementation, NRCS will provide technical assistance in:
 - o Selecting suitable locations for refugia location. *In Missouri, utilize the appropriate Ecological Site Description.*
 - o *Prior to implementation, provide a map identifying the location and size of each refugia site.*
 - o Protecting site resources during construction.
 - o Preparing specifications for applying this enhancement for each site using NRCS approved specification sheets, job sheets, technical notes, and narrative



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statements in the conservation plan, or other acceptable documentation. *In Missouri, use the Restoration and Management of Rare or Declining Habitats (643) standard, job sheet(s) within 643 for the Ecological Site Description, and Wildlife and Pollinator Plantings Job Sheet (JS-MO645 Wildlife and Pollinator Plantings), as appropriate, to plan all enhancements including seedbed preparation, seeding methods, stand establishment, and maintenance.*

- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned refugia were constructed according to specifications developed for the site.
- o After implementation, verify any erosion control and/or invasive plant treatment needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ ac.	Fiscal Year Completed _____
☐ Pictures Provided (date of planting showing site prep and follow-up maintenance or current condition if no planting occurred)	Date(s) of Planting _____ Date(s) Pictures Taken _____
☐ List of Management and/or Maintenance Activities with Dates Performed Provided (site prep / follow-up maintenance)	_____ _____ _____
NRCS Technical Adequacy Signature _____	Date _____



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Total Amount Applied _____ ac.	Fiscal Year Completed _____
☐ Pictures Provided (during growing season showing blooms)	Date(s) Pictures Taken _____
☐ List of Management and/or Maintenance Activities with Dates Performed Provided	_____
_____	_____
NRCS Technical Adequacy Signature _____	Date _____

Total Amount Applied _____ ac.	Fiscal Year Completed _____
☐ Pictures Provided (during growing season showing blooms)	Date(s) Pictures Taken _____
☐ List of Management and/or Maintenance Activities with Dates Performed Provided	_____
_____	_____
NRCS Technical Adequacy Signature _____	Date _____

Total Amount Applied _____ ac.	Fiscal Year Completed _____
☐ Pictures Provided (during growing season showing blooms)	Date(s) Pictures Taken _____
☐ List of Management and/or Maintenance Activities with Dates Performed Provided	_____
_____	_____
NRCS Technical Adequacy Signature _____	Date _____



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CONSERVATION ENHANCEMENT ACTIVITY

E644136Z

Managing flood-irrigated landscapes for wildlife

Conservation Practice 644: Wetland Wildlife Habitat Management

APPLICABLE LAND USE: Crop (Annual & Mixed), Crop (Perennial), Pasture

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Developing and implementing a conservation plan that supports maintenance of flood irrigation in key landscapes to provide important foraging habitat for local breeding and migratory waterfowl and water birds.

Criteria

- Develop a conservation plan for the targeted species suite.
- As identified in the conservation plan, flood-irrigation will be applied in an amount and at a time to meet the targeted wildlife need.
- States will apply general criteria from the NRCS National Conservation Practice Standard Wetland Wildlife Habitat Management (Code 644) and additional criteria as required by the NRCS State Office
- Targeted species must be listed on the State Wildlife Action Plan or as State Endangered, State Threatened, State Sensitive (or similar designation).



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- Appropriate locations for this enhancement will be provided by the NRCS State Office (NRCS State Office will base locations on current distribution of the targeted species and potential expansion into adjacent habitat for the target species. Other agencies (e.g. State Department of Fish and Game, USFWS) and organizations (e.g. Ducks Unlimited, The Nature Conservancy) will provide input to NRCS concerning instances where the enhancement is used to provide habitat outside of the current distribution of the target species.)
- Use of fertilizers, pesticides and other chemicals shall not compromise the intended purpose of this practice.
- Use criteria in other NRCS Conservation Practice Standards to facilitate the management of wetland wildlife habitat as appropriate for the site.
- Depending on site conditions, facilitative practices may be used to implement this enhancement. The NRCS Conservation Practice Standards may include, but are not limited to: Dam, Diversion (Code 348), Diversion (Code 362), Fence (Code 382), Field Border (Code 386), Filter Strip (code 393), Grade Stabilization Structure (Code 410), Irrigation Canal or Lateral (Code 320), Irrigation Field Ditch (Code 388), Irrigation Pipeline (Code 430), Irrigation Storage Reservoir (Code 436), Irrigation System, Surface and Subsurface (Code 443), Irrigation Water Management (Code 449), Nutrient Management (Code 590), Pumping Plant (Code 533), Riparian Herbaceous Cover (Code 390), Shallow Water Development and Management (Code 646), Stream Crossing (code 578), Structure for Water Control (Code 587), and Wetland Enhancement (Code 659).
- A Wildlife Habitat Evaluation Guide (WHEG) specific to wildlife habitat within a flood irrigated landscape on perennial cropland or pasture must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than or equal to 0.6).



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Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow the Wildlife Habitat Management Plan.
- o During implementation, maintain field log to include:
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Digital photographs documenting the habitat provided
 - o *In Missouri, if applicable, also include Date/time the water control structure(s) are opened and closed*
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, provide and explain state NRCS Conservation Practice Standard Wetland Wildlife Habitat Management (Code 644) as it relates to implementing this enhancement.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model, Marsh Community Model or Early Successional Vegetation Community Model as appropriate.*



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Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- ☐ Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet, which will indicate required flooding dates with a minimum of 60 days flooding between November 1 and February 15.*
- ☐ Prior to implementation, review and explain the Wildlife Habitat Management Plan to the participant.
- ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



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CONSERVATION ENHANCEMENT ACTIVITY

E645137Z

CONSERVATION STEWARDSHIP PROGRAM

Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat

Conservation Practice 645: Upland Wildlife Habitat Management

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture; Range; Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 1 Year

Enhancement Description

Reduction of artificial perching sites, nest sites, food, and water available to subsidized predators in areas where human-subsidized predators are a threat to sensitive wildlife species. Human-subsidized predators may include ravens, crows, magpies, coyotes, foxes, skunks, raccoons, and other species. Activities under this enhancement may include removal of non-native or invasive trees; removal of unused power poles, corrals, windmills, buildings, and other vertical structures; and/or removal or management of watering facilities, dead livestock, road kill, garbage, animal feed, dumps, and other non-natural food sources.

Criteria

- Identify the targeted sensitive wildlife species.
- Identify the subsidized predator(s).
- Coordinate planned activities with a NRCS or partner biologist.
 - Coordination with US Fish and Wildlife Service and the State Wildlife Agency may be required.



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- Treat only artificial, human caused attractants.
 - This activity shall not to be used to remove or modify natural water sources, natural perching and nesting sites, and natural food sources for native predators.
- Develop an assessment of the predator attractants, including:
 - Each individual subsidy with a point on a map,
 - A description of the subsidy,
 - Effects to non-target wildlife species, especially raptors and other native predators, and
 - Potential effects to all sensitive as well as threatened and endangered (T&E) species.
- Conduct attractant removal activities in a manner to avoid direct mortality and outside of the nesting season.
- Lethal control shall not be performed as a component of this activity.



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Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, meet with NRCS to review results of predator attractant assessment conducted by NRCS and to discuss predator attractants to be removed
- ☐ During implementation, maintain field log to include:
 - o Map of the assessed and removed predator attractants with point locations and descriptions of each item
 - o Dates when the attractant was removed
 - o Before and after photographs of each removed attractant
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS will:

- ☐ Prior to implementation, identify targeted sensitive species and conduct an assessment of subsidized predator attractants on site
- ☐ Prior to implementation, provide and explain state NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645) as it relates to implementing this enhancement.
- ☐ Prior to implementation, develop technical specifications for attractant removal needed to improve habitat for the targeted sensitive species consistent with NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645).
- ☐ Prior to implementation, assess effects on non-target wildlife species and complete any required coordination with US Fish and Wildlife Service and the State Wildlife Agency.
- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.



United States Department of Agriculture

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E645137Z - Reduction of
attractants to human-subsidized predators
in sensitive wildlife species habitat

December 2017

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United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646136Z1

Close structures to capture and retain rainfall to improve food sources for waterfowl and other wading birds during winter

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds.

E646136Z1 - Close structures to capture and retain rainfall to improve food sources for waterfowl and other wading birds during winter

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CONSERVATION STEWARDSHIP PROGRAM

Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures that affect applicable fields will be closed by mid-fall and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15.
- Applicable fields must be flooded to an average depth of 6 to 18 inches.
 - o Water depths of 6 to 10 inches provide maximum benefit to targeted species.
 - o Water depths shall not exceed 18 inches for any extended period.
- Manipulation can occur prior to holding water. Manipulation should not affect greater than 80 percent of the field to which the activity is applied.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be paired with E647136Z1-Manipulate vegetation on fields where rainfall is to be captured and retained. If not paired with E647136Z1-Manipulate vegetation on fields where rainfall is to be captured and retained, this Enhancement may also be paired with E646136Z3-Shorebird habitat, late season shallow water with manipulation or E646136Z4-Shorebird habitat, extended late season shallow water with manipulation.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

Prior to implementation, ensure water control structures are in proper working order.

- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth
- o *During implementation, water control structures that affect applicable fields will be closed by mid-fall (November 1 in Missouri) and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15.*
- o *During implementation, manipulation can occur prior to holding water. Manipulation should not affect greater than 80 percent of the field to which the activity is applied. In Missouri, reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened
 - o Digital photographs documenting the condition of the structures and the habitat provided



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- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
Post Implementation WHEG score = _____
- o After implementation, review field log to verify enhancement was implemented to meet criteria.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E646136Z1 - Close structures to capture and retain rainfall to improve food sources for waterfowl and other wading birds during winter

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646136Z2

Extend retention of captured rainfall to provide enhanced food sources for late winter habitat for migratory waterfowl and shorebirds

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward migration. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may

Enhancement E646136Z2 - Extend retention of captured rainfall to provide enhanced food sources for late winter habitat for migratory waterfowl and shorebirds

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constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.

Criteria:

- o This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the targeted species suite.

Water control structures affecting the subject land use are to be closed by mid-fall and remain closed until late winter to early spring.

- o Water depths of 6 to 10 inches provide maximum benefit to targeted species.

- o Water depths shall not exceed 18 inches for any extended period.

- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E647136Z1-Manipulate vegetation on fields where rainfall is to be captured and retained. If not grouped with E647136Z1-Manipulate vegetation on fields where rainfall is to be captured and retained, this Enhancement may also



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be grouped with E646136Z3-Shorebird habitat, late season shallow water with manipulation or E646136Z4-Shorebird habitat, extended late season shallow water with manipulation.

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o *During implementation, water control structures affecting the subject land use are to be closed by mid-fall (November 1 in Missouri) and remain closed until late winter to early spring (March 15 in Missouri). In Missouri, maintain water depths over 50% or more of the area through March 15.*
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition, and burning can destroy grain and eliminate residue that provides food and substrate for aquatic organisms.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;

Enhancement E646136Z2 - Extend retention of captured rainfall to provide enhanced food sources for late winter habitat for migratory waterfowl and shorebirds

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- o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
- o Date/time when the water control structures were opened
- o Digital photographs documenting the condition of the structures and the habitat provided.
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*

Enhancement E646136Z2 - Extend retention of captured rainfall to provide enhanced food sources for late winter habitat for migratory waterfowl and shorebirds

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- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
Post Implementation WHEG score = _____
- o After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646136Z2 - Extend retention of captured rainfall to provide enhanced food sources for late winter habitat for migratory waterfowl and shorebirds

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646136Z3

Shorebird habitat, late season shallow water with manipulation to improve food sources

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south postbreeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.

- Develop a wildlife habitat management plan for the targeted species suite.



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- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer.
- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after late spring to early summer, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646136Z2- Close structures and extend retention of captured rainfall to provided late winter habitat for migratory waterfowl and shorebirds.



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Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures affecting the subject land use acre are to be closed by November 1 (or within 2 days after harvest), catching and holding all available precipitation, until mid-summer (July 31 in Missouri). In Missouri, consider reflooding area slowly over a 2-3 week period.*
- o *During implementation, in Missouri, sites must maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.*
- o *During implementation, manipulate vegetation on the site, if after late spring to early summer (after June 15 in Missouri), the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;



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- o Date/time when the water control structures were opened;
- o Digital photographs documenting the condition of the structures and the habitat provided.
- o *In Missouri, date and method used to manipulate vegetation if applicable.*
- o *In Missouri, the percent of field manipulated and the pattern in which it was manipulated if applicable.*
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches (*1 -4 inches in Missouri*) of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;



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Post Implementation WHEG score = _____

0 After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646136Z4

Shorebird habitat, extended late season shallow water with manipulation to improve food sources

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south post-breeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.



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- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer.
- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after June 15, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulation by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- The need for vegetative manipulation will be triggered by the above stated scenario. However, multiple manipulations may be needed to achieve the desired habitat response.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646136Z2- Close structures and extend retention of captured rainfall to provided late winter habitat for migratory waterfowl and shorebirds.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures affecting the subject land use acre are to be closed by November 1 (or within 2 days after harvest), catching and holding all available precipitation, until mid-summer (August 31 in Missouri). In Missouri, consider reflooding area slowly over a 2-3 week period.*
- o *During implementation in Missouri, maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened;
 - o Digital photographs documenting the condition of the structures and the habitat provided.



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- o *In Missouri, date and method used to manipulate vegetation if applicable.*
- o *In Missouri, the percent of field manipulated and the pattern in which it was manipulated if applicable.*
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches (*1 -4 inches in Missouri*) of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.



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o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

o After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646136Z5 - Shorebird habitat, extended late season shallow water with manipulation to improve food sources

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646137Z1

Close structures to capture and retain rainfall to improve cover and shelter for waterfowl and wading birds during winter

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal cover and shelter for myriad species of waterfowl and wading birds. Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Harvested and idled agricultural lands, notably those occurring within rice rotations, can contain high densities of early successional vegetation. When moisture is added to this situation, short-term habitat is available and cover and shelter is provided to early successional species.



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Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures that affect applicable fields will be closed by mid-fall and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15.
- Applicable fields must be flooded to an average depth of 6 to 18 inches.
 - o Water depths of 6 to 10 inches provide maximum benefit to targeted species.
 - o Water depths shall not exceed 18 inches for any extended period.
- Manipulation can occur prior to holding water. Manipulation should not affect greater than 80 percent of the field to which the activity is applied.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be paired with E647137Z1-Manipulate vegetation on fields where rainfall is to be captured and retained. If not paired with E647136Z1-Manipulate vegetation on fields where rainfall is to be captured and retained, this practice can also be paired with E646137Z3-Shorebird habitat, late season shallow water with manipulation or E646137Z4-Shorebird habitat, extended late season shallow water with manipulation.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth
- o *During implementation, water control structures that affect applicable fields will be closed by mid-fall (November 1 in Missouri) and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15. In Missouri, consider reflooding area slowly over a 2-3 week period.*
- o *During implementation, applicable fields must be flooded to an average depth of 6 to 18 inches. In Missouri, maintain water depths over 50% or more of the area.*
- o *During implementation, manipulation can occur prior to holding water. Manipulation should not affect greater than 80 percent of the field to which the activity is applied. In Missouri, reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition.*
- o During implementation, maintain field log to include
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;



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- ☐ Date/time when the water control structures were opened
- ☐ Digital photographs documenting the condition of the structures and the habitat provided
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- ☐ Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- ☐ Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- ☐ Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

Enhancement E646137Z1 - Close structures to capture and retain rainfall to improve cover and shelter for waterfowl and other wading birds during winter

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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646137Z1 - Close structures to capture and retain rainfall to improve cover and shelter for waterfowl and other wading birds during winter

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646137Z2

Extend retention of captured rainfall to provide enhanced cover and shelter for late winter habitat for migratory waterfowl and shorebirds

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal cover and shelter for myriad species of waterfowl and wading birds. Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Harvested and idled agricultural lands, notably those occurring within rice rotations, can contain high densities of early successional vegetation. When moisture is added to this situation, cover and shelter is provided to early successional species. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward migration. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results



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in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.

Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the targeted species suite.

Water control structures affecting the subject land use are to be closed by mid-fall and remain closed until late winter to early spring

- o Water depths of 6 to 10 inches provide maximum benefit to targeted species.
- o Water depths shall not exceed 18 inches for any extended period.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E647137Z1-Manipulate vegetation on fields where rainfall is to be captured and retained. If not grouped with E647137Z1Manipulate vegetation on fields where rainfall is to be captured and retained, this Enhancement may also be grouped with E646137Z3-Shorebird habitat, late season shallow water with manipulation or E646137Z4-Shorebird habitat, extended late season shallow water with manipulation.



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Documentation and Implementation Requirements:

Participant Will:

- Prior to implementation, ensure water control structures are in proper working order.
- Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth
- *During implementation, water control structures affecting the subject land use are to be closed by mid-fall (November 1 in Missouri) and remain closed until late winter to early spring (March 15 in Missouri). Consider reflooding area slowly over a 2 – 3 week period. In Missouri, maintain water depths over 50% or more of the area.*
- *During implementation in Missouri, reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition, and burning can destroy grain and eliminate residue that provides food and substrate for aquatic organisms.*
- During implementation, maintain field log to include:
 - Crops grown and the harvest date for the crops grown on the applicable acres;
 - Date/time the water control structure was closed;
 - Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - Date/time when the water control structures were opened
 - Digital photographs documenting the condition of the structures and the habitat provided



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- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

- o After implementation, review field log to verify enhancement was implemented to meet criteria.

Enhancement E646137Z2 - Extend retention of captured rainfall to provide enhanced cover and shelter for late winter habitat for migratory waterfowl and shorebirds

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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646137Z2 - Extend retention of captured rainfall to provide enhanced cover and shelter for late winter habitat for migratory waterfowl and shorebirds

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646137Z3

Shorebird habitat, late season shallow water with manipulation to improve cover and shelter

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south postbreeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.

- Develop a wildlife habitat management plan for the targeted species suite.



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- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer.
- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after late spring to early summer, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646137Z2- Close structures and extend retention of captured rainfall to provided late winter habitat for migratory waterfowl and shorebirds.



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Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures affecting the subject land use acre are to be closed by November 1 (or within 2 days after harvest), catching and holding all available precipitation, until mid-summer (July 31 in Missouri). In Missouri, consider reflooding area slowly over a 2-3 week period.*
- o *During implementation in Missouri, maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.*
- o *During implementation, manipulate vegetation on the site, if after late spring to early summer (after June 15 in Missouri), the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;



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- ☐ Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
- ☐ Date/time when the water control structures were opened;
- ☐ Digital photographs documenting the condition of the structures and the habitat provided.
- ☐ *In Missouri, date and method used to manipulate vegetation if applicable.*
 - ☐ *In Missouri, the percent of field manipulated and the pattern in which it was manipulated if applicable.*
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches (*1 -4 inches in Missouri*) of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.
- ☐ Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- ☐ Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.



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- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- o After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646137Z3 - Shorebird
habitat, late season shallow water with
manipulation to improve cover and shelter

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646137Z4

Shorebird habitat, extended late season shallow water with manipulation to improve cover and shelter

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south postbreeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.

Enhancement E646137Z5 - Shorebird habitat, extended late season shallow water with manipulation to improve cover and shelter

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CONSERVATION STEWARDSHIP PROGRAM

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer.
- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after June 15, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulation by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- The need for vegetative manipulation will be triggered by the above stated scenario. However, multiple manipulations may be needed to achieve the desired habitat response.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646137Z2- Close Structures and extend retention of captured rainfall to provided late winter habitat for migratory waterfowl and shorebirds.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
 - o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
 - o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
 - o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
 - o *During implementation, water control structures affecting the subject land use acre are to be closed by November 1 (or within 2 days after harvest), catching and holding all available precipitation, until mid-summer (August 31 in Missouri). In Missouri, consider reflooding area slowly over a 2-3 week period.*
 - o *During implementation in Missouri, maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened;
 - o Digital photographs documenting the condition of the structures and the habitat provided.



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- *In Missouri, date and method used to manipulate vegetation if applicable.*
- *In Missouri, the percent of field manipulated and the pattern in which it was manipulated if applicable.*
- After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- As needed, provide additional technical assistance to the participant.
- Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches (*1 -4 inches in Missouri*) of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.
- Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____



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- o After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646137Z5 - Shorebird habitat, extended late season shallow water with manipulation to improve cover and shelter

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646138Z1

Close structures to capture and retain rainfall to improve water sources for waterfowl and wading birds during winter

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. Capturing and retaining water on those areas provide access for waterfowl and wading birds and promote the establishment of aquatic invertebrate populations, thus providing protein-rich food sources.

Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.



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- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures that affect applicable fields will be closed by mid-fall and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15.
- Applicable fields must be flooded to an average depth of 6 to 18 inches.
 - Water depths of 6 to 10 inches provide maximum benefit to targeted species.
 - Water depths shall not exceed 18 inches for any extended period.
- Manipulation can occur prior to holding water. Manipulation should not affect greater than 80 percent of the field to which the activity is applied.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be paired with E646138Z3-Shorebird habitat, late season shallow water with manipulation or E646138Z4-Shorebird habitat, extended late season shallow water with manipulation.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures that affect applicable fields will be closed by mid-fall (November 1 in Missouri) and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15.*
- o *During implementation, manipulation can occur prior to holding water. Manipulation should not affect greater than 80 percent of the field to which the activity is applied. In Missouri, reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;



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- o Date/time when the water control structures were opened
- o Digital photographs documenting the condition of the structures and the habitat provided
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____



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- o After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646138Z1 - Close structures to capture and retain rainfall to improve water sources for waterfowl and wading birds during winter

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646138Z2

Extend retention of captured rainfall to provide late winter water habitat for migratory waterfowl and shorebirds

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide ideal habitat for myriad species of waterfowl and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. In addition, flooded conditions provide access for waterfowl and wading birds and promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. Benefits may become greatest during late winter and early spring as birds are assimilating nutrient and fat reserves in preparation for northward. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will produce maximum benefits to migratory waterfowl



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and shorebirds by providing high quality habitat during a time when habitat may otherwise be in low abundance.

Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the targeted species suite.

Water control structures affecting the subject land use are to be closed by mid-fall and remain closed until late winter to early spring.

- Water depths of 6 to 10 inches provide maximum benefit to targeted species.
- Water depths shall not exceed 18 inches for any extended period.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646138Z3-Shorebird habitat, late season shallow water with manipulation or E646138Z4-Shorebird habitat, extended late season shallow water with manipulation.



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Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth
- o *During implementation, water control structures affecting the subject land use are to be closed by mid-fall (November 1 in Missouri) and remain closed until late winter to early spring (March 15 in Missouri). In Missouri, maintain water depths over 50% or more of the area through March 15.*
- o *During implementation, reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition, and burning can destroy grain and eliminate residue that provides food and substrate for aquatic organisms.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened
 - o Digital photographs documenting the condition of the structures and the habitat provided



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- After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- As needed, provide additional technical assistance to the participant.
- Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
Post Implementation WHEG score = _____
- After implementation, review field log to verify enhancement was implemented to meet criteria.



United States Department of Agriculture

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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646138Z2 - Extend retention of captured rainfall to provide late winter water habitat for migratory waterfowl and shorebirds

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646138Z3

Shorebird habitat, late season shallow water with manipulation

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south postbreeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Improved conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.

- Develop a wildlife habitat management plan for the targeted species suite.



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- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer.
- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after late spring to early summer, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646138Z2- Close structures and extend retention of captured rainfall to provided late winter habitat for migratory waterfowl and shorebirds.



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Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures affecting the subject land use acre are to be closed by November 1 (or within 2 days after harvest), catching and holding all available precipitation, until mid-summer (July 31 in Missouri). In Missouri, consider reflooding area slowly over a 2-3 week period.*
- o *During implementation in Missouri, maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.*
- o *During implementation, manipulate vegetation on the site, if after late spring to early summer (after June 15 in Missouri), the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened;



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- ☐ Digital photographs documenting the condition of the structures and the habitat provided.
- ☐ *In Missouri, date and method used to manipulate vegetation if applicable.*
- ☐ *In Missouri, the percent of field manipulated and the pattern in which it was manipulated if applicable.*
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches of water (*1 -4 inches in Missouri*) in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.
- ☐ Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- ☐ Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- ☐ Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- ☐ Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646138Z3 - Shorebird
habitat, late season shallow water with
manipulation

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646138Z4

Shorebird habitat, extended late season shallow water with manipulation

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south postbreeding. Providing shallow water and mud flat habitat will benefit a variety of shorebird species. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.

- Develop a wildlife habitat management plan for the targeted species suite.



CONSERVATION STEWARDSHIP PROGRAM

- Water control structures affecting the subject land use acre are to *remain closed* catching and holding all available precipitation, until mid-summer.
- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after June 15, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulation by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- The need for vegetative manipulation will be triggered by the above stated scenario. However, multiple manipulations may be needed to achieve the desired habitat response.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646138Z2-Extend retention of captured rainfall to provided late winter habitat for migratory waterfowl and shorebirds.

Enhancement E646138Z5 - Shorebird habitat, extended late season shallow water with manipulation	March 2018 - Missouri Page 2



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Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures affecting the subject land use acre are to be closed by November 1 (or within 2 days after harvest), catching and holding all available precipitation, until mid-summer (August 31 in Missouri). In Missouri, consider reflooding area slowly over a 2-3 week period.*
- o *During implementation in Missouri, maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened;
 - o Digital photographs documenting the condition of the structures and the habitat provided.



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- o In Missouri, date and method used to manipulate vegetation if applicable.
- o In Missouri, the percent of field manipulated and the pattern in which it was manipulated if applicable.
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches (*1 -4 inches in Missouri*) of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover. Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
Post Implementation WHEG score = _____
- o After implementation, review field log to verify enhancement was implemented to meet criteria.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646138Z5 - Shorebird
habitat, extended late season shallow water
with manipulation

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646139Z1

Close structures to capture and retain rainfall for waterfowl and wading birds to improve habitat continuity during winter

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and winter, agricultural fields provide habitat for myriad species of waterfowl and wading birds. The flooded conditions promote a network or continuity of habitat that is available to migratory waterfowl, shorebirds, and wading birds. Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds.

Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

Enhancement E646139Z1 - Close structures to capture and retain rainfall for waterfowl and wading birds to improve habitat continuity

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CONSERVATION STEWARDSHIP PROGRAM

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures that affect applicable fields will be closed by mid-fall and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15.
- Applicable fields must be flooded to an average depth of 6 to 18 inches.
- Water depths of 6 to 10 inches provide maximum benefit to targeted species.
- Water depths shall not exceed 18 inches for any extended period.
- Manipulation can occur prior to holding water. Manipulation should not affect greater than 80 percent of the field to which the activity is applied.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be paired with E647139Z1-Manipulate vegetation on fields where rainfall is to be captured and retained. If not paired with E647139Z1-Manipulate vegetation on fields where rainfall is to be captured and retained, this Enhancement may also be paired with E646139Z3-Shorebird habitat, late season shallow water with manipulation or E646139Z4Shorebird habitat, extended late season shallow water with manipulation.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures that affect applicable fields will be closed by mid-fall (November 1 in Missouri) and remain closed through February 15. For fields where harvest of the crop occurs after mid-fall (e.g., ratoon rice), structures must be closed within 2 days following harvest and remain closed through February 15.*
- o *During implementation, manipulation can occur prior to holding water. Manipulation should not affect greater than 80 percent of the field to which the activity is applied. In Missouri, reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition.*
- o During implementation, maintain field log to include
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened



CONSERVATION STEWARDSHIP PROGRAM

- ☐ Digital photographs documenting the condition of the structures and the habitat provided
- ☐ After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- ☐ As needed, provide additional technical assistance to the participant.
- ☐ Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- ☐ Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*
- ☐

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- ☐ Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
 - ☐ Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
 - ☐ Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
 - ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
- Post Implementation WHEG score = _____**
- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646139Z1 - Close structures to capture and retain rainfall for waterfowl and wading birds to improve habitat continuity

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646139Z2

Extend retention of captured rainfall to provide habitat continuity during late winter for migratory waterfowl and shorebirds

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

When flooded to shallow depths during fall and retained into late winter, agricultural fields provide habitat for myriad species of waterfowl and wading birds. However, agricultural fields flooded during fall-winter are typically drained during late January or February in advance of spring planting. This often results in a rapid reduction in available habitat, and may constrain ability of migratory birds to adequately prepare for migration, with greatest impacts likely occurring during years of low winter precipitation. Retention of water on agricultural lands into early spring will provide a network or continuity of habitat for waterfowl, wading birds, and shorebirds during a time when it may otherwise be in low abundance. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein rich food sources for shorebirds as well as waterfowl and wading birds.



CONSERVATION STEWARDSHIP PROGRAM

Criteria:

This enhancement applies to crop land use acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the targeted species suite.

Water control structures affecting the subject land use are to be closed by mid-fall and remain closed until late winter to early spring.

- Water depths of 6 to 10 inches provide maximum benefit to targeted species.
- Water depths shall not exceed 18 inches for any extended period.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E647139Z1-Manipulate vegetation on fields where rainfall is to be captured and retained. If not grouped with E647139Z1-Manipulate vegetation on fields where rainfall is to be captured and retained, this Enhancement may also be grouped with E646139Z3-Shorebird habitat, late season shallow water with manipulation or E646139Z4Shorebird habitat, extended late season shallow water with manipulation.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth
- o Develop a wildlife habitat management plan for the targeted species suite.
- o *During implementation, water control structures affecting the subject land use are to be closed by mid-fall (November 1 in Missouri) and remain closed until late winter to early spring (March 15 in Missouri). In Missouri, maintain water depths over 50% or more of the area through March 15.*
- o *In Missouri, Reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition, and burning can destroy grain and eliminate residue that provides food and substrate for aquatic organisms.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened



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- o Digital photographs documenting the condition of the structures and the habitat provided
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
Post Implementation WHEG score = _____
- o After implementation, review field log to verify enhancement was implemented to meet criteria.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646139Z2 - Extend retention of captured rainfall to provide habitat continuity during late winter for migratory waterfowl and shorebirds

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E646139Z3

Shorebird habitat, late season shallow water with manipulation to enhance habitat continuity and space

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south postbreeding (Elliott and McKnight 2000). Providing shallow water and mud flat habitat will benefit a variety of shorebird species (Vermillion 2012). Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds (Elphick et. al. 2010). Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.

Enhancement E646139Z3 - Shorebird habitat, late season shallow water with manipulation to enhance habitat continuity and space

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CONSERVATION STEWARDSHIP PROGRAM

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer.
- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after late spring to early summer, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646139Z2- Close structures and extend retention of captured rainfall to provided late winter habitat for migratory waterfowl and shorebirds.



CONSERVATION STEWARDSHIP PROGRAM

Documentation Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures affecting the subject land use acre are to be closed by November 1 (or within 2 days after harvest), catching and holding all available precipitation, until mid-summer (July 31 in Missouri). In Missouri, consider reflooding area slowly over a 2-3 week period.*
- o *During implementation in Missouri, maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.*
- o *During implementation, manipulate vegetation on the site, if after late spring to early summer (after June 15 in Missouri), the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulate by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened;



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- o Digital photographs documenting the condition of the structures and the habitat provided.
- o *In Missouri, date and method used to manipulate vegetation if applicable.*
- o *In Missouri, the percent of field manipulated and the pattern in which it was manipulated if applicable.*
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches (*1 -4 inches in Missouri*) of water in early spring, can retain that water until July 31 and will have less than 25 percent woody cover.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
Post Implementation WHEG score = _____
- o After implementation, review field log to verify enhancement was implemented to meet criteria.



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CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646139Z3 - Shorebird habitat, late season shallow water with manipulation to enhance habitat continuity and space

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E64613924

Shorebird habitat, extended late season shallow water with manipulation to enhance habitat continuity and space

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

Suitable shorebird habitat is limited during the summer and fall as birds migrate south postbreeding. Providing shallow water with manipulation of vegetation creates a network or continuity of habitat required by this suite of migratory birds during a time when it may otherwise be in low abundance. Optimal conditions are created when water levels are slowly reduced through evaporation, which allows for propagation of invertebrates (typically insect larvae) used as food by shorebirds. Manipulation of vegetation, preferably through rolling, creates open conditions required by this suite of birds as a means to detect and avoid predators, and provides nutrient inputs for invertebrate production.

Criteria:

This enhancement applies to crop land use acres with leveed fields that are capable of holding 8 to 18 inches of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.

Enhancement E64613925 - Shorebird habitat, extended late season shallow water with manipulation to enhance habitat continuity and space

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CONSERVATION STEWARDSHIP PROGRAM

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer.
- Sites must contain 8 to 18 inches of water.
- Manipulate vegetation on the site, if after June 15, the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more. Manipulation by rolling or disking to bring the majority (75 percent or more) of the vegetation at or below the soil surface. Rolling is the preferred method of manipulation to maintain soil quality.
- The need for vegetative manipulation will be triggered by the above stated scenario. However, multiple manipulations may be needed to achieve the desired habitat response.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646139Z2- Close structures and extend retention of captured rainfall to provided late winter habitat for migratory waterfowl and shorebirds.



CONSERVATION STEWARDSHIP PROGRAM

Documentation Implementation Requirements:

Participant Will:

- o Prior to implementation, ensure water control structures are in proper working order.
 - o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan including opening / closing water control structures as specified in order to hold water at the proper time and at the proper depth.
- o *During implementation, water control structures affecting the subject land use acre are to be closed by November 1 (or within 2 days after harvest), catching and holding all available precipitation, until mid-summer (August 31 in Missouri). In Missouri, consider reflooding area slowly over a 2-3 week period.*
- o *During implementation in Missouri, maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time the water control structure was closed;
 - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - o Date/time when the water control structures were opened;
 - o Digital photographs documenting the condition of the structures and the habitat provided.



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- o *In Missouri, date and method used to manipulate vegetation if applicable.*
 - o *In Missouri, the percent of field manipulated and the pattern in which it was manipulated if applicable.*
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields capable of holding 8 to 18 inches (*1 -4 inches in Missouri*) of water mid-spring with capabilities for retaining that water until August 31, and will have less than 25 percent woody cover.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; *In Missouri, use the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropland Community Model.*

Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, this plan will include JS-Biol-17 Shallow Water Management for Wildlife job sheet.*



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- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- o After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

Enhancement E646139Z5 - Shorebird habitat, extended late season shallow water with manipulation to enhance habitat continuity and space

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E647136Z1

Manipulate vegetation on fields where rainfall is to be captured and retained to provide enhanced food sources for wildlife

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist soil units, especially in the Gulf Coast and Central Valley of California. When flooded to shallow depths during fall and winter, these agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. In many cases, light manipulation of dense vegetation is needed to improve the accessibility of food resources to waterfowl, wading birds, and shorebirds.



CONSERVATION STEWARDSHIP PROGRAM

Criteria:

This enhancement applies to crop land use acres with leveed fields that contain robust vegetation (e.g., postharvest rice stubble, annual grasses and sedges) and are capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the suite of species targeted.
- Manipulate vegetation by either lightly disking or bush hogging, or rolling the majority (50-80 percent) of the contracted acres during early to late fall.
- For fields where harvest of the crop occurs later (e.g., ratoon rice), manipulation must be conducted within 7 days following harvest.
- Manipulation shall not be done in a large, continuous block. Strip disking and/or mowing in mosaic or other irregular patterns is required.
- Manipulation can occur prior to or during the water holding period, but manipulation must not affect greater than 80 percent of the field.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be paired with E646136Z1 - Close structures to capture and retain rainfall for waterfowl and wading birds during winter or E646136Z2 - Close structures and extend retention of captured rainfall to provide enhanced food sources and late winter habitat for migratory waterfowl and shorebirds.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan.
- o *During implementation, manipulate vegetation by either lightly disking or bush hogging, or rolling the majority (50-80 percent) of the contracted acres during early to late fall. In Missouri, lightly disk (2-4 inches deep), bush hog, or roll 50-80% of the area within 7 days following harvest or by December 15.*
- o *During implementation, for fields where harvest of the crop occurs later (e.g., ratoon rice), manipulation must be conducted within 7 days following harvest. In Missouri, manipulation must occur by December 15.*
- o *During implementation, manipulation shall not be done in a large, continuous block. Strip disking and/or mowing in mosaic or other irregular patterns is required. In Missouri, disk, bush hog, or roll in strips (30-75 feet wide), a mosaic, or other irregular pattern.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time and description of all habitat management actions taken; *In Missouri include:*
 - o *Date/time the water control structures were closed;*
 - o *Date/time of each field visit and observed water levels;*
 - o *Date/time and method used to manipulate vegetation;*
 - o *Percent of field manipulated and the pattern in which it was manipulated.*



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- o Digital photographs documenting the condition of the habitat provided.
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to crop acres with leveed fields that contain robust vegetation (e.g., post-harvest rice stubble, annual grasses and sedges) and are capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. *In Missouri, follow the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species.
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;



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Post Implementation WHEG score = _____

- o After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E647136Z1 - Manipulate vegetation on fields where rainfall is to be captured and retained to provide enhanced food sources for wildlife

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E647136Z2

Provide early successional habitat between first rice crop and ratoon crop to support important wildlife food sources

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

PRACTICE LIFE SPAN: 1 year

Enhancement Description:

Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Rice farms support many migratory and resident water bird species. The first rice crop harvest often coincides with the arrival of early migrating shorebirds. This time of year is also the highest rainfall months. If standing rice stubble from the first crop is rolled to push above-ground stalks level with the soil surface, the first component of this type of habitat is met. When moisture is added to this situation, short-term habitat is available until the ratoon crop initiates growth to a height beyond that which would provide benefit to the early successional species.



CONSERVATION STEWARDSHIP PROGRAM

Criteria:

This enhancement applies to crop land use acres with leveed fields where a ratoon crop is grow.

- Develop a wildlife habitat management plan for the suite of species targeted.
- Immediately after first crop rice harvest, the standing rice stubble is forced to the soil surface with a rolling implement.
- Close water control structure affecting the planned area no later than two days after harvest.
- Capture ephemeral moisture and/or encouraged moist soil conditions.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646136Z1-Close structures to capture and retain rainfall for waterfowl and wading birds during winter or E646136Z2 -Close structures and extend retention of captured rainfall to provide enhanced food sources and late winter habitat for migratory waterfowl and shorebirds and E647136Z1-Manipulate vegetation on fields where rainfall is to be captured and retained.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- During implementation, follow Wildlife Habitat Management Plan.
- *During implementation, in Missouri, consider reflooding area slowly over a 2-3 week period by incrementally installing water control structure boards. Maintaining water levels between 6 to 18 inches in depth, with an average depth of 6 inches over 50% or more of the area is recommended.*
- During implementation, maintain field log to include:
 - Crops grown and the harvest date for the crops grown on the applicable acres;
 - Date/time and description of all habitat management actions taken; *In Missouri include:*
 - *Date the first rice crop stubble was rolled level to the soil surface.*
 - *Date/time the water control structures were closed;*
 - *Date/time of each field visit and observed water levels;*
- Digital photographs documenting the condition of the habitat provided
- After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.



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NRCS Will:

- As needed, provide additional technical assistance to the participant.
- Prior to implementation, verify this enhancement will be applied to crop acres with leveed fields where a ratoon crop is grown.
- Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of
- Enhancement. *In Missouri, follow the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species.
- Prior to implementation, meet with participant to review Wildlife Habitat Management Plan. After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

- After implementation, review field log to verify enhancement was implemented to meet criteria.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E647136Z3

Establish and maintain moist soil vegetation on cropland edges to increase wildlife food sources and habitat diversity

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

The wetter or more water saturated portions of cropland fields such as areas adjacent to field drains, have the potential to produce a significant amount of moist soil plants which are a tremendously valuable source of forage and cover for many waterfowl, shorebird and wading bird species, especially during a period of time when such plants may be limited. Under normal cropland production, the native vegetation is restricted on these sites through mechanical and/or chemical control. These maintained moist soil plants also will provide filtering and improve water quality.



CONSERVATION STEWARDSHIP PROGRAM

Criteria:

This enhancement applies to cropland acres on soils that are hydric and/or significantly water saturated during the growing season and are located on the low side or down slope portion of a field that receives hydrologic surface flow from the remainder of the field. Surface flow could be a result of irrigation or rainfall. Selected areas should be capable of being flooded through the use of a water control structure or other means.

- Develop a habitat management plan targeting waterfowl, shore birds and wading birds for the area enrolled under this enhancement.
- Maintain naturally occurring vegetation on the appropriate, selected area (minimum 20 feet wide and 500 feet long) to provide forage and cover for waterfowl, shorebirds and wading birds.
- Manipulation (light disking, burning, mowing, or rolling) of the selected area will be allowed during early fall to increase attractiveness and use by targeted species. Otherwise, all mechanical disturbance and chemical treatments shall be excluded from the selected area and care should be taken to ensure that the area is not impacted by agricultural operations in the adjacent crop.
- Control of invasive species may be allowed with approval from local NRCS staff.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan.
- o *During implementation, maintain naturally occurring vegetation on the appropriate, selected area (minimum 20 feet wide and 500 feet long) to provide forage and cover for waterfowl, shorebirds and wading birds. In Missouri, it is recommended to select areas located next to usable shrubby cover when possible.*
- o *During implementation, manipulation (light disking, burning, mowing, or rolling) of the selected area will be allowed during early fall to increase attractiveness and use by targeted species. Otherwise, all mechanical disturbance and chemical treatments shall be excluded from the selected area and care should be taken to ensure that the area is not impacted by agricultural operations in the adjacent crop. In Missouri, mowing is not allowed as a stand-alone practice.*
- o *During implementation in Missouri, discontinue weed management on selected area during growing season. Invasive plant species, such as reed canary grass, which prevent establishment/production of desirable plants, should be controlled. Control undesirable species on a spot basis when possible.*
- o *During implementation in Missouri, close structures or manipulate drains to hold water by November 1. Consider reflooding area slowly over a 2-3 week period by incrementally installing water control structure boards. Maintaining water levels between 6 to 18 inches in depth, with an average depth of 6 inches over 50% or more of the area is recommended.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time and description of all habitat management actions taken; *In Missouri include:*

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- *Map depicting location and dimensions of areas established in naturally occurring moist-soil vegetation.*
 - Digital photographs documenting the condition of the habitat provided. *In Missouri, photographs should also include acreage depicting winter flooding.*
- After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- As needed, provide additional technical assistance to the participant.
- Prior to implementation, verify this enhancement will be applied to crop acres on soils that are hydric and/or significantly water saturated during the growing season and are located on the low side or down slope portion of a field that receives hydrologic surface flow from the remainder of the field. Surface flow could be a result of irrigation or rainfall. Selected areas should be capable of being flooded through the use of a water control structure or other means.
- Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. *In Missouri, follow the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions
- Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, the Wildlife Habitat Management plan should target waterfowl,*



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shorebirds, and/or wading birds, and include moist-soil species which will be emphasized to establish.

- ☐ Prior to implementation, meet with participant to review Wildlife Habitat Management Plan
- ☐ After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

- ☐ After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E647137Z1

Manipulate vegetation on fields where rainfall is to be captured and retained to provide enhanced cover and shelter for wildlife

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist soil units, especially in the Gulf Coast and Central Valley of California. When flooded to shallow depths during fall and winter, these agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. In many cases, light manipulation of dense vegetation is needed to improve the accessibility of food resources to waterfowl, wading birds, and shorebirds.



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Criteria:

This enhancement applies to crop land use acres with leveed fields that contain robust vegetation (e.g., post-harvest rice stubble, annual grasses and sedges) and are capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.

- Develop a wildlife habitat management plan for the suite of species targeted.
- Manipulate vegetation by either lightly disking or bush hogging, or rolling the majority (50-80 percent) of the contracted acres during early to late fall.
- For fields where harvest of the crop occurs later (e.g., ratoon rice), manipulation must be conducted within 7 days following harvest.
- Manipulation shall not be done in a large, continuous block. Strip disking and/or mowing in mosaic or other irregular patterns is required.
- Manipulation can occur prior to or during the water holding period, but manipulation must not affect greater than 80 percent of the field.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be paired with E646137Z1-Close structures to capture and retain rainfall for waterfowl and wading birds during winter or E646137Z2 -Close structures and extend retention of captured rainfall to provide enhanced food sources and late winter habitat for migratory waterfowl and shorebirds.

E647137Z1 - Manipulate vegetation on fields where rainfall is to be captured and retained to provide enhanced cover and shelter for wildlife	March 2018 - Missouri Page 2



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan.
- o *During implementation, manipulate vegetation by either lightly disking or bush hogging, or rolling the majority (50-80 percent) of the contracted acres during early to late fall. In Missouri, lightly disk (2-4 inches deep), bush hog, or roll 50-80% of the area within 7 days following harvest or by December 15.*
- o *During implementation, for fields where harvest of the crop occurs later (e.g., ratoon rice), manipulation must be conducted within 7 days following harvest. In Missouri, manipulation must occur by December 15.*
- o *During implementation, manipulation shall not be done in a large, continuous block. Strip disking and/or mowing in mosaic or other irregular patterns is required. In Missouri, disk, bush hog, or roll in strips (30-75 feet wide), a mosaic, or other irregular pattern.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time and description of all habitat management actions taken; *In Missouri include:*
 - o *Date/time the water control structures were closed;*
 - o *Date/time of each field visit and observed water levels;*
 - o *Date/time and method used to manipulate vegetation;*
 - o *Percent of field manipulated and the pattern in which it was manipulated.*



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- o Digital photographs documenting the condition of the habitat provided
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to cropland acres with leveed fields that contain robust vegetation (e.g., post-harvest rice stubble, annual grasses and sedges) and are capable of holding water at an average depth of 6 to 18 inches for the duration of the activity.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. *In Missouri, follow the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species.
- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

- o After implementation, review field log to verify enhancement was implemented to meet criteria.

E647137Z1 - Manipulate vegetation on fields where rainfall is to be captured and retained to provide enhanced cover and shelter for wildlife	March 2018 - Missouri Page 4



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E647137Z1 - Manipulate vegetation on fields where rainfall is to be captured and retained to provide enhanced cover and shelter for wildlife

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E647137Z2

Establish and maintain moist soil vegetation on cropland edges to increase wildlife cover, shelter and habitat diversity

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

The wetter or more water saturated portions of cropland fields such as areas adjacent to field drains, have the potential to produce a significant amount of moist soil plants which are a tremendously valuable source of forage and cover for many waterfowl, shorebird and wading bird species, especially during a period of time when such plants may be limited. Under normal cropland production, the native vegetation is restricted on these sites through mechanical and/or chemical control. These maintained moist soil plants also will provide filtering and improve water quality.



CONSERVATION STEWARDSHIP PROGRAM

Criteria:

This enhancement applies to cropland acres on soils that are hydric and/or significantly water saturated during the growing season and are located on the low side or down slope portion of a field that receives hydrologic surface flow from the remainder of the field. Surface flow could be a result of irrigation or rainfall. Selected areas should be capable of being flooded through the use of a water control structure or other means.

- Develop a habitat management plan targeting waterfowl, shore birds and wading birds for the area enrolled under this enhancement.
- Maintain naturally occurring vegetation on the appropriate, selected area (minimum 20 feet wide and 500 feet long) to provide forage and cover for waterfowl, shorebirds and wading birds.
- Manipulation (light disking, burning, mowing, or rolling) of the selected area will be allowed during early fall to increase attractiveness and use by targeted species. Otherwise, all mechanical disturbance and chemical treatments shall be excluded from the selected area and care should be taken to ensure that the area is not impacted by agricultural operations in the adjacent crop.
- Control of invasive species may be allowed with approval from local NRCS staff.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan.
- o *During implementation, maintain naturally occurring vegetation on the appropriate, selected area (minimum 20 feet wide and 500 feet long) to provide forage and cover for waterfowl, shorebirds and wading birds. In Missouri, it is recommended to select areas located next to usable shrubby cover when possible.*
- o *During implementation, manipulation (light disking, burning, mowing, or rolling) of the selected area will be allowed during early fall to increase attractiveness and use by targeted species. Otherwise, all mechanical disturbance and chemical treatments shall be excluded from the selected area and care should be taken to ensure that the area is not impacted by agricultural operations in the adjacent crop. In Missouri, mowing is not allowed as a stand-alone practice.*
- o *During implementation in Missouri, discontinue weed management on selected area during growing season. Invasive plant species, such as reed canary grass, which prevent establishment/production of desirable plants, should be controlled. Control undesirable species on a spot basis when possible.*
- o *During implementation in Missouri, close structures or manipulate drains to hold water by November 1. Consider reflooding area slowly over a 2-3 week period by incrementally installing water control structure boards. Maintaining water levels between 6 to 18 inches in depth, with an average depth of 6 inches over 50% or more of the area is recommended.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;



CONSERVATION STEWARDSHIP PROGRAM

o Date/time and description of all habitat management actions taken; *In*

Missouri include:

- o *Map depicting location and dimensions of areas established in naturally occurring moist-soil vegetation.*
- o Digital photographs documenting the condition of the habitat provided.
In Missouri, photographs should also include acreage depicting winter flooding.
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to crop acres on soils that are hydric and/or significantly water saturated during the growing season and are located on the low side or down slope portion of a field that receives hydrologic surface flow from the remainder of the field. Surface flow could be a result of irrigation or rainfall. Selected areas should be capable of being flooded through the use of a water control structure or other means.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. *In Missouri, follow the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*
Existing WHEG score = _____ Planned Post Implementation WHEG score = _____
- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. *In Missouri, the Wildlife Habitat Management plan should target waterfowl, shorebirds, and/or wading birds, and include moist-soil species which will be emphasized to establish.*



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;

Post Implementation WHEG score = _____

- o After implementation, review field log to verify enhancement was implemented to meet criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E647137Z2 - Establish and maintain moist soil vegetation on cropland edges to increase wildlife cover, shelter and habitat diversity

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E647139Z1

Establish and maintain wildlife habitat continuity by providing early successional, naturally occurring vegetation in ditches and ditch bank borders

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

This enhancement is to encourage the establishment of early successional, naturally occurring vegetation in ditches, side slope and bank borders to provide cover, critical nesting and brood rearing habitat as well as filtering overland flow and improving water quality. Ditches perform the critical function of removing water from agricultural lands. Allowing naturally occurring vegetation to develop along ditches, including side slopes, banks and borders, will help provide food and cover for wildlife while enhancing aquatic habitat and improving water quality. Ditches and ditch borders provide a foundation that supports a diverse wildlife community including Northern Bobwhite (*Colinus virginianus*) and other birds preferring early successional cover. Rabbits, furbearers, amphibians and many other species that inhabit agriculture areas will use this vegetative cover. These areas can also provide critical nesting habitat for the Mottled Duck (*Anas fulvigula*).



CONSERVATION STEWARDSHIP PROGRAM

Criteria:

This enhancement applies to crop, pasture, or range land use acres with existing ditches and ditch borders where adequate naturally occurring vegetation is not present.

- Develop a wildlife habitat management plan for the suite of species targeted.
- Allow ditches and bank borders to re-vegetate to naturally occurring vegetation.
- Ditch borders will be a minimum of 20 feet wide and a maximum 60 feet wide.
- In circumstances where woody vegetation exists immediately adjacent to a farm ditch (e.g., such as along a spoil bank), an adjoining minimum 20 feet early successional, native vegetative border will also be established.
- Once established, ditches and borders may not be treated more than once every two years and may not be mowed, disked, grazed, dredged, cleaned, sprayed with broadcast herbicides or otherwise disturbed between treatments.
- Encroaching undesired woody vegetation may be controlled between the two treatment periods through spot spraying with approved herbicides.
- For the two approved treatments, light disking, mowing or herbicides may be used to control vegetation next to designated ditches, along ditch banks and borders.
 - These treatments must be applied outside the primary wildlife ground nesting season.
 - Only herbicides approved for appropriate site conditions shall be applied.
 - Herbicides shall only be applied following manufacturers label requirements.
- Grazing is not permitted unless a grazing management plan is in effect.
- Multiple ditch borders on the same property must have varying maintenance schedules.
- Any invasive species such as kudzu, cogongrass, Chinese tallow tree, etc. that may become established in the border area must be controlled by spot spraying of approved herbicide.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- During implementation, follow Wildlife Habitat Management Plan.
- *During implementation in Missouri, control existing non-native grasses, such as tall fescue and reed canary grass, with an approved herbicide. Noxious weeds and invasive brush must also be controlled through spot spraying.*
- *During implementation in Missouri, management may occur once every 2 years using light disking or herbicides. Mowing is not allowed as a stand-alone practice. It is recommended to only manage ½ of the area each year. Disk between July 16 to March 31. Herbicides should be applied to suppress cool-season grasses from March 15 to April 30 or September 15 to October 31. Herbicides should be applied to suppress warm-season grasses from July 16 to September 15.*
- *During implementation in Missouri, no management may be applied during the primary nesting season from May 1 to July 15.*
- During implementation, maintain field log to include:
 - Crops grown and the harvest date for the crops grown on the applicable acres.
 - Date/time and description of all habitat management actions taken. **In Missouri include:**
Map depicting location and dimensions of installed or revegetated ditch borders



CONSERVATION STEWARDSHIP PROGRAM

- o Digital photographs documenting the condition of the habitat provided. In Missouri, provide digital photographs of before and after treatment(s) to document site conditions
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

NRCS Will:

- o As needed, provide additional technical assistance to the participant.
- o Prior to implementation, verify this enhancement will be applied to crop, pasture, or range acres with existing ditches and ditch borders where adequate naturally occurring vegetation is not present.
- o Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. *In Missouri, follow the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model or the Missouri Wildlife Habitat Appraisal Guide – Early Successional Vegetation Community Model as appropriate.*
Existing WHEG score = _____ Planned Post Implementation WHEG score = _____
- o Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species. Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- o After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
Post Implementation WHEG score = _____
- o After implementation, review field log to verify enhancement was implemented to meet criteria.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E647139Z1 - Establish and maintain wildlife habitat continuity by providing early successional, naturally occurring vegetation in ditches and ditch bank borders

March 2018 - Missouri
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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E647139Z2

Provide early successional habitat between first rice crop and ratoon crop to support space and continuity for wildlife

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Rice farms support many migratory and resident water bird species. The first rice crop harvest often coincides with the arrival of early migrating shorebirds and can provide necessary habitat continuity and space. If standing rice stubble from the first crop is rolled to push above-ground stalks level with the soil surface, the first component of this type of habitat is met. When moisture is added to this situation, short term habitat is available until the ratoon crop initiates growth to a height beyond that which would provide benefit to the early successional species.

E647139Z2 - Provide early successional habitat between first rice crop and ratoon crop to support space and continuity for wildlife

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Criteria:

This enhancement applies to crop land use acres with leveed fields where a ratoon crop is grown.

- Develop a wildlife habitat management plan for the suite of species targeted.
- Immediately after first crop rice harvest, the standing rice stubble is forced to the soil surface with a rolling implement.
- Close water control structure affecting the planned area no later than two days after harvest.
- Capture ephemeral moisture and/or encouraged moist soil conditions.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with E646139Z1-Close structures to capture and retain rainfall for waterfowl and wading birds during winter or E646139Z2 -Close structures and extend retention of captured rainfall to provide enhanced food sources and late winter habitat for migratory waterfowl and shorebirds.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- o Prior to implementation, meet with NRCS to review results of wildlife habitat assessment conducted by NRCS and discuss range of management alternatives that would improve wildlife habitat conditions.
- o Prior to implementation, meet with NRCS to obtain and review Wildlife Habitat Management Plan.
- o During implementation, follow Wildlife Habitat Management Plan.
- o *During implementation in Missouri, consider reflooding area slowly over a 2-3 week period by incrementally installing water control structure boards. Maintaining water levels between 6 to 18 inches in depth, with an average depth of 6 inches over 50% or more of the area is recommended.*
- o During implementation, maintain field log to include:
 - o Crops grown and the harvest date for the crops grown on the applicable acres;
 - o Date/time and description of all habitat management actions taken; *In Missouri include:*
 - o *Date the first rice crop stubble was rolled level to the soil surface.*
 - o *Date/time the water control structures were closed;*
 - o *Date/time of each field visit and observed water levels;*
 - o Digital photographs documenting the condition of the habitat provided.
- o After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Will:

- As needed, provide additional technical assistance to the participant.
- Prior to implementation, verify this enhancement will be applied to crop acres with leveed fields where a ratoon crop is grown.
- Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. *In Missouri, follow the Missouri Wildlife Habitat Appraisal Guide – Flooded Cropfield Community Model.*

Existing WHEG score = _____ Planned Post Implementation WHEG score = _____

- Prior to implementation, review results of wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop Wildlife Habitat Management Plan for targeted suite of species.
- Prior to implementation, meet with participant to review Wildlife Habitat Management Plan.
- After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide;
- **Post Implementation WHEG score = _____**
- After implementation, review field log to verify enhancement was implemented to meet criteria.



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CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date

E647139Z2 - Provide early successional habitat between first rice crop and ratoon crop to support space and continuity for wildlife

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CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666106Z2

Maintaining and improving forest soil quality

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Adopts guidelines for maintaining and improving soil quality on sites where forest management activities are practiced. These guidelines will increase soil organic matter content, improve nutrient cycling, and increase infiltration and retention of precipitation. Avoiding soil compaction will allow for greater root development and tree growth, limit wind throw, and reduce drought stress. Increasing carbon storage on site will maintain the soil microbial community and provide wildlife benefits.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Update or modify the Forest Management Plan to include the following guidelines for forest soil quality management, as appropriate for the site. o Limit the area of compacted soils

E666106Z2 Maintaining and improving forest soil quality	March 2018 - Missouri Page 1



CONSERVATION STEWARDSHIP PROGRAM

- Operate equipment on established roads and trails and minimize travel into the general forest area.
- Operate equipment on woody debris (slash) in areas with sensitive or wet soils.
- Sequence forest management activities (back to front) to limit the number of equipment passes.
- Use smaller and lighter equipment, track equipment, low PSI tires, and lighter loads. Where appropriate, use mules, draft horses or other animals for moving harvested trees.
- Restore heavily compacted areas (e.g., by sub-soiling or other mechanical method).
- Limit impacts of roads and landings
 - Avoid disturbing natural drainage channels (e.g., design road locations to minimize stream crossings and diversions).
 - Roads and landings occupy 5% or less of total wooded acreage.
 - Establish cover on roads and landings that are not in use. ○ Limit soil disturbance and control erosion
 - Avoid disturbing forest litter and the soil surface.
 - Protect roads through the use of water bars/rolling dips.
 - Establish cover on disturbed areas.
 - Retain downed tops and other unharvested materials for ground cover, nutrient recycling, and organic matter retention.
- Maintain favorable conditions for forest growth
 - Control the amount of road use, and off-road travel, to prevent erosion, compaction, and disturbance of the soil surface.
 - Establish cover on any disturbed areas.
 - Monitor the forest area for signs of insect damage, tree diseases, invasive plants, or other impacts on forest growth and health.
- Retain and enhance carbon storage to support soil ecologic functions
 - Follow stocking guidelines to maintain tree canopy cover (i.e., between the A and B lines of stocking guides at a minimum; preferably closer to the A line). See the stocking chart shown below.



CONSERVATION STEWARDSHIP PROGRAM

- Add woody material to the soil by girdling or cutting non-merchantable trees or trees of undesired species.
- Use extended rotations to keep carbon on the site for a longer period.
- Retain fallen trees, branches, snags, downed tops and other unharvested materials for ground cover, nutrient recycling, and organic matter retention, in quantities as specified below, or by the NRCS State Office. O For western conifer forests, maintain coarse woody residue:
 - That is greater than 3" in diameter,
 - left lying on the soil surface, and
 - which Meets the post-harvest target levels of the following chart:

Moisture Regime	Habitat Type	Target tons per acre of coarse woody debris
Dry Forests	Ponderosa pine types	5-13 tons/acre
	Douglas-fir types	7-14 tons/acre
	Grand fir types	7-14 tons/acre
Moist Forests	Western hemlock types	16-33 tons/acre

- o Maintain soil productivity by soil testing and fertilization if needed (including options for fertilizing with manure, biochar, or other organic materials).
- o Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- o Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained.
- o Schedule treatments to avoid overstocked conditions using approved silvicultural stocking guides.
- o Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in

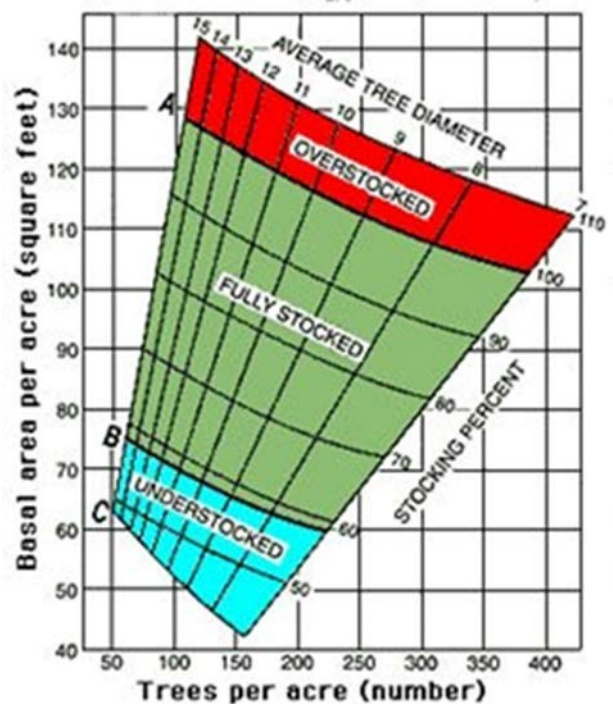


CONSERVATION STEWARDSHIP PROGRAM

terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.

- Refer to WIN-PST criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), and comply with applicable State and local laws if an herbicide will be used.
- Time tree girdling and/or felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.

- Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts. Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities. **Figure 1: Stocking Chart** showing tree size and density scales indicating when forests are overstocked (too crowded), fully stocked (providing good growth), and understocked (trees do not fully utilize the site). Stocking guides were developed by Gingrich (1967).





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard or appropriate Job Sheet and use this information to meet the criteria of this enhancement.
- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for rehabilitating existing soil resource damage including compaction, ruts, puddling, erosion, downslope soil movement, exposed mineral soil, and depletion of the forest floor. It will also address rehabilitation for any water resource concerns such as diverted streams or intermittent flows. It will assess road layout and provide guidance on practices to correct any erosion or hydrologic impacts. Have the FMP available for NRCS review.
- Prior to implementation, arrange for soil tests to be conducted, one per each five acres. The FMP will include guidance for correcting any significant nutrient deficiencies.
- Prior to implementation, arrange for a forestry specialist to evaluate the stand and perform site-specific marking of areas to be seeded with cover plantings, locations where water control is needed, and trees that are to be girdled for snag creation.
- Prior to implementation, be aware of the state's Forestry Best Management Practices (BMP's) so they can be followed to protect the site and maintain soil and water quality. *Refer to Missouri Forest Management Guidelines Unit 3 at <https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>*
- Prior to implementation, be aware of the current stocking level of trees on the site and the target level of stocking to maintain as part of this enhancement. This information should be detailed in the Forest Management Plan.
- During implementation, maintain the stand in a fully stocked condition using the appropriate stocking chart, between the A and B lines (see figure 1). The target stocking level should be between the A and B line, but closer to the A line. *The target stocking percent should be greater than or equal to 80%.*
- During implementation, follow state BMP guidelines and any additional guidance from the NRCS State Office to protect trails, roads and landings from soil loss or damage.



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Revegetate these disturbed areas or close them off to traffic to allow natural vegetation to grow on these areas. *Refer to Missouri Forest Management Guidelines Unit 3 at <https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>*

- o During implementation, spread tops and limbs across the site during any tree reduction operations to protect the soil.
- o After implementation, provide the following information to NRCS; dates completed, methods used, representative post-treatment photos, and a map delineating the treated acres.

NRCS will:

- o Prior to implementation, provide assistance with interpretation of a current or updated FMP on acres targeted by this enhancement.
- o Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - o Forest Stand Improvement (Code 666)
 - o Integrated Pest Management (Code 595)
 - o Forest Trails and Landings (Code 655)
 - o Access Road (Code 560)
- o As needed, prior to implementation, NRCS will provide technical assistance in:
 - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and will discuss the details with the participant.
- o Prior to implementation, discuss the requirement to follow the state's Forestry Best Management Practices (BMPs). *Refer to Missouri Forest Management Guidelines Unit 3 at <https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>*



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- o During implementation, provide technical assistance if requested by the participant. During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the enhancement was completed according to the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) specifications and the enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666107Z

Maintaining and improving forest soil quality by limiting compaction

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Soil Quality Degradation

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Adopts guidelines for maintaining and improving soil quality on sites where forest management activities are practiced. These guidelines will increase soil organic matter content, improve nutrient cycling, and increase infiltration and retention of precipitation. Avoiding soil compaction will allow for greater root development and tree growth, limit windthrow, and reduce drought stress. Increasing carbon storage on site will maintain the soil microbial community and provide wildlife benefits.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Update or modify the Forest Management Plan to include the following guidelines for forest soil quality management, as appropriate for the site.
 - Limit the area of compacted soils



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- Operate equipment on established roads and trails and minimize travel into the general forest area
- Operate equipment on woody debris (slash) in areas with sensitive or wet soils
- Sequence forest management activities (back to front) to limit the number of equipment passes
- Use smaller and lighter equipment, track equipment, low PSI tires, and lighter loads. Where appropriate, use mules, draft horses or other animals for moving harvested trees
- Restore heavily compacted areas (e.g., by sub-soiling or other mechanical method)
- o Limit impacts of roads and landings
 - Avoid disturbing natural drainage channels (e.g., design road locations to minimize stream crossings and diversions)
 - Roads and landings occupy 5% or less of total wooded acreage
 - Establish cover on roads and landings that are not in use
 - o Limit soil disturbance and control erosion
 - Avoid disturbing forest litter and the soil surface
 - Protect roads through the use of water bars/rolling dips
 - Establish cover on disturbed areas
 - Retain downed tops and other unharvested materials for ground cover, nutrient recycling, and organic matter retention
- o Maintain favorable conditions for forest growth
 - Control the amount of road use, and off-road travel, to prevent erosion, compaction, and disturbance of the soil surface
 - Establish cover on any disturbed areas
 - Monitor the forest area for signs of insect damage, tree diseases, invasive plants, or other impacts on forest growth and health
- o Retain and enhance carbon storage to support soil ecologic functions
 - Follow stocking guidelines to maintain tree canopy cover (i.e., between the A and B lines of stocking guides at a minimum; preferably closer to the A line). See the stocking chart shown below.
 - Add woody material to the soil by girdling or cutting non-merchantable trees or trees of undesired species



CONSERVATION STEWARDSHIP PROGRAM

- Use extended rotations to keep carbon on the site for a longer period
- Retain fallen trees, branches, snags, downed tops and other unharvested materials for ground cover, nutrient recycling, and organic matter retention, in quantities as specified below, or by the NRCS State Office.
 - ▲ For western conifer forests, maintain coarse woody residue:
 - that is greater than 3" in diameter,
 - left lying on the soil surface, and
 - which meets the post-harvest target levels of the following chart:

	Habitat Type	Target tons per acre of coarse woody debris
Dry Forests	Ponderosa pine types	5-13 tons/acre
↕	Douglas-fir types	7-14 tons/acre
	Grand fir types	7-14 tons/acre
Moist Forests	Western hemlock types	16-33 tons/acre

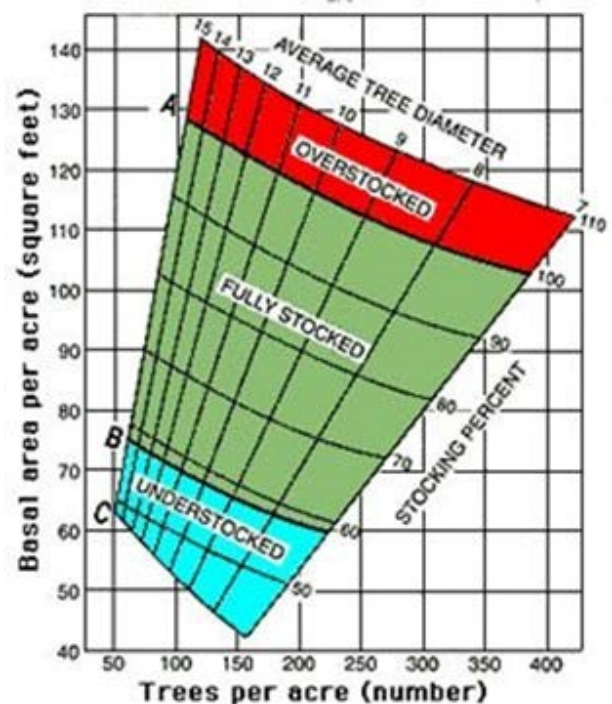
- o Maintain soil productivity by soil testing and fertilization if needed (including options for fertilizing with manure, biochar, or other organic materials).
- o Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- o Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/ stocking guides.
- o Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.



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- Refer to WIN-PST criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595), and comply with applicable State and local laws if an herbicide will be used.
- Time tree girdling or felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655) to protect soil and site resources from vehicle impacts. Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.

Figure 1: Stocking Chart showing tree size and density scales indicating when forests are overstocked (too crowded), fully stocked (providing good growth), and understocked (trees do not fully utilize the site). Stocking guides were developed by Gingrich (1967).





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- o Prior to implementation, review the NRCS

Conservation Practice Standard Forest Stand

Improvement (Code 666) conservation practice standard or appropriate state Job Sheet and use this information to meet the criteria of this enhancement.

- o Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for rehabilitating existing soil resource damage including compaction, ruts, puddling, erosion, downslope soil movement, exposed mineral soil, and depletion of the forest floor. It will also address rehabilitation for any water resource concerns such as diverted streams or intermittent flows. It will assess road layout and provide guidance on practices to correct any erosion or hydrologic impacts. Have the FMP available for NRCS review.
- o Prior to implementation, arrange for soil tests to be conducted, one per each five acres. The FMP will include guidance for correcting any significant nutrient deficiencies.
- o Prior to implementation, arrange for a forestry specialist to evaluate the stand and perform site-specific marking of areas to be seeded with cover plantings, locations where water control is needed, and trees that are to be girdled for snag creation. Prior to implementation, be aware of the state's Forestry Best Management Practices (BMP's) so they can be followed to protect the site and maintain soil and water quality. Refer to Missouri Forest Management Guidelines Unit 3 at <https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>
- o Prior to implementation, be aware of the current stocking level of trees on the site and the target level of stocking to maintain as part of this enhancement. This information should be detailed in the Forest Management Plan.
- o During implementation, maintain the stand in a fully stocked condition using the appropriate stocking chart, between the A and B lines (see figure 1). The target stocking level should be between the A and B line, but closer to the A line. The target stocking percent should be greater than or equal to 80%.

E666107Z Maintaining and improving forest soil quality by limiting compaction	March 2018 - Missouri Page 5



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- During implementation, follow state BMP guidelines and any additional guidance from the NRCS State Office to protect trails, roads and landings from soil loss or damage. Revegetate these disturbed areas or close them off to traffic to allow natural vegetation to grow on these areas. Refer to Missouri Forest Management Guidelines Unit 3 at <https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>
- During implementation, spread tops and limbs across the site during any tree reduction operations to protect the soil.
- After implementation, provide the following information to NRCS; dates completed, methods used, representative post-treatment photos, and a map delineating the treated acres.

NRCS will:

- Prior to implementation, provide assistance with interpretation of a current or updated FMP on acres targeted by this enhancement.
- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - Forest Stand Improvement (Code 666)
 - Integrated Pest Management (Code 595)
 - Forest Trails and Landings (Code 655)
 - Access Road (Code 560)
- As needed, prior to implementation, NRCS will provide technical assistance in:
 - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and will discuss the details with the participant.
- Prior to implementation, discuss the requirement to follow the state's Forestry Best Management Practices (BMPs). Refer to Missouri Forest Management Guidelines Unit 3 at <https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>
- During implementation, provide technical assistance if requested by the participant.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.



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- o After implementation, verify that the enhancement was completed according to the NRCS Conservation Practice Standard Forest Stand Improvement (CPS 666) specifications and the enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666115Z2

Forest Stand Improvement to manage understory vegetation to aid in moisture management

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Insufficient Water

ENHANCEMENT LIFE SPAN: 10 YEARS

Enhancement Description:

Forest stand improvement to manage the structure and composition of overstory and understory vegetation so that additional moisture is captured and filtered through the vegetation and soil. Managing the understory vegetation will increase available water to the plants, minimize run-off and erosion, and improve water quality. An adequately stocked forest provides inputs of leaves, needles, and woody twigs and stems to the forest floor, adding to soil organic matter and contributing to forest soil health. Desirable tree species and understory vegetation, with spacing that allows ground cover to develop, will allow moisture to infiltrate and be stored in the soil, releasing moisture over longer periods of time. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. These practices encourage development of a forested ecosystem that efficiently utilizes available water.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.



CONSERVATION STEWARDSHIP PROGRAM

- The enhancement will be applied to sites which have an uncharacteristically dense understory of shrubs and small trees that limit development of ground cover.
- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/stocking guides.
- Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595).
- Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).
- The acres planned must have an “acceptable growing stock” level of at least the B line on an appropriate stocking chart.



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- This enhancement requires implementation of the following activities (a through d) in the area where the enhancement applies.
 - a. Excessive volatile live vegetation and woody debris – When volatile, live grasses and shrubs and/or woody debris are present, a reduction of these fuels may be accomplished by using heavy duty brush cutters or similar equipment.
 - b. Closed canopy – When trees form a continuous closed canopy, thin the stand to allow for heat escape and to improve the health of residual trees and understory vegetation. Open the canopy by cutting or killing selected trees to allow sunlight to reach the forest floor. Reduce slash from the cut trees by cutting off the limbs as needed. An alternative is to use single tree injections to reduce the density of poor quality trees and open up the canopy.
 - c. Ladder fuels – When ladder fuels form connections between the ground and the higher levels of the canopy, thus increasing the risk of fire spreading into tree crowns, break the continuity of fuel between the ground and the upper canopy. Complete removal is not required as long as the continuity is disrupted.
 - d. Undesirable Vegetation – Use control measures to reduce or eliminate undesirable vegetation and favor desirable vegetation for the site.
- Minimize damage to residual trees during the treatment process.
- If machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), which contains information needed to meet criteria for this enhancement.
- Prior to implementation, develop an understanding of management practices that reduce a dense understory of small trees and brush, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- Prior to implementation, work with a professional forester to prepare or update a current Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for thinning the stand and maintaining fully stocked conditions as specified in enhancement criteria. The FMP will also include recommended practices for managing understory vegetation to favor moisture infiltration.
- Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
 - Forest Trails and Landings (Code 655)
 - Integrated Pest Management (Code 595)
 - Woody Residue Treatment (Code 384)
 - Prescribed Burning (Code 338)
 - *Brush Management (Code 314)*
- Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed or killed, and will develop a strategy for controlling undesirable understory vegetation.
- Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- During implementation, follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and specifications provided by NRCS, to ensure that:



CONSERVATION STEWARDSHIP PROGRAM

- o Trees are removed, killed, or retained to achieve all planned purposes and landowner objectives.
- o The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
- o The operation avoids or minimizes damage to desirable vegetation.

During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.

Refer to Missouri Forest Management Guidelines Unit 3 at

<https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>

- o During implementation, reduce stand stocking to correspond with the B-line of an appropriate stocking chart, retaining trees with larger, healthy crowns and undamaged trunks. If tree removal is not an option, reduce density by killing selected trees through girdling and/or chemically treatments.
- o During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions. If prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a state approved prescribed burn plan. If using chemical methods, follow application and timing recommendations from an approved source.
- o During implementation, limit the size of debris piles to minimize wildfire hazards.
- o During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- o After implementation, take digital photos showing representative post-treatment conditions.
- o After implementation, notify NRCS that the work has been completed and make treatment documentation records available for NRCS review and certification.

NRCS will:

- o Prior to implementation, provide assistance with interpretation of a current or updated FMP for sites where this enhancement will be applied.
- o Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.



CONSERVATION STEWARDSHIP PROGRAM

- ☐ Forest Stand Improvement (Code 666)
- ☐ Woody Residue Treatment (Code 384)
- ☐ Forest Trails and Landings (Code 655)
- ☐ Integrated Pest Management (Code 595)
- ☐ Prescribed Burning (Code 338)
- ☐ *Brush Management (314)*
- ☐ Prior to implementation, provide and explain the state's Forestry BMP guidelines. Refer to *Missouri Forest Management Guidelines Unit 3* at <https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>
- ☐ During implementation, provide technical assistance if requested by the participant.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, provide technical assistance if requested by the participant. After implementation, review treatment documentation records and photographs to verify the enhancement was completed according to enhancement criteria and specifications in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666).

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666118Z

Enhance development of the forest understory to capture nutrients in surface water

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 10 YEARS

Enhancement Description:

Forest stand improvement to manage the structure and composition of overstory and understory vegetation so that additional moisture is captured and filtered through the vegetation and soil, thus minimizing nutrient loss through ground water. Managing the understory vegetation will increase available water to plants, minimize run-off and erosion, and improve water quality. This enhancement provides for management of the understory vegetation in a forested area, using mechanical, chemical or manual methods to improve the plant species mix and the health of the residual vegetation. These practices encourage development of a forested ecosystem that efficiently utilizes available water and captures nutrients.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

- The enhancement will be applied to sites which have an uncharacteristically dense understory of shrubs and small trees that limit development of ground cover.



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- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
- Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
- Use available guidelines for species and species groups to determine spacing, density, size class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural/stocking guides.
- Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595).
- Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).
- The acres planned must have an “acceptable growing stock” level of at least the B line on an appropriate stocking chart.
- This enhancement requires implementation of the following activities (a through d) in the area where the enhancement applies.



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- a. Excessive volatile live vegetation and woody debris – When volatile, live grasses and shrubs and/or woody debris are present, a reduction of these fuels may be accomplished by using heavy duty brush cutters or similar equipment.
 - b. Closed canopy – When trees form a continuous closed canopy, thin the stand to allow for heat escape and to improve the health of residual trees and understory vegetation. Open the canopy by cutting or killing selected trees to allow sunlight to reach the forest floor. Reduce slash from the cut trees by cutting off the limbs as needed. An alternative is to use single tree injections to reduce the density of poor quality trees and open up the canopy.
 - c. Ladder fuels – When ladder fuels form connections between the ground and the higher levels of the canopy, thus increasing the risk of fire spreading into tree crowns, break the continuity of fuel between the ground and the upper canopy. Complete removal is not required as long as the continuity is disrupted.
 - d. Undesirable Vegetation – Use control measures to reduce or eliminate undesirable vegetation and favor desirable vegetation for the site.
- Minimize damage to residual trees during the treatment process.
 - If machinery is being used, operate under dry conditions when the machinery will not cause rutting and/or soil compaction.
 - The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard or appropriate Job Sheet and use this information to meet the criteria of this enhancement.
- Prior to implementation, develop an understanding of management practices that reduce a dense understory of small trees and brush, and the types of understory vegetation that will be encouraged by these practices. (Request NRCS technical assistance, as needed.)
- Prior to implementation, work with a professional forester to prepare or update a current Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for thinning the stand and maintaining fully stocked conditions as specified in enhancement criteria. The FMP will also include recommended practices for managing understory vegetation to capture nutrients.
- Prior to implementation, recognize that other NRCS Conservation Practice Standard may be needed to apply this enhancement. These may include:
 - Forest Trails and Landings (Code 655)
 - Integrated Pest Management (Code 595)
 - Woody Residue Treatment (Code 384)
 - Prescribed Burning (Code 338)
 - *Brush Management (Code 314)*
- Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed or killed, and will develop a strategy for controlling undesirable understory vegetation.
- Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- During implementation, follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and specifications provided by NRCS, to ensure that:



CONSERVATION STEWARDSHIP PROGRAM

- Trees are removed, killed, or retained to achieve all planned purposes and landowner objectives.
- The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
- The operation avoids or minimizes damage to desirable vegetation.

During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss. *Refer to Missouri Forest Management Guidelines Unit 3 at*

<https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>

- During implementation, reduce stand stocking to correspond with the B-line of an appropriate stocking chart, retaining trees with larger, healthy crowns and undamaged trunks. If tree removal is not an option, reduce density by killing selected trees through girdling and/or chemical treatments.
- During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions. If prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a state approved prescribed burn plan. If using chemical methods, follow application and timing recommendations from an approved source.
- During implementation, limit the size of debris piles to minimize wildfire hazards.
- During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- After implementation, take digital photos showing representative post-treatment conditions.
- After implementation, notify NRCS that the work has been completed and make treatment documentation records available for NRCS review and certification.

NRCS will:

- Prior to implementation, provide assistance with interpretation of a current or updated FMP for sites where this enhancement will be applied.
- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.



CONSERVATION STEWARDSHIP PROGRAM

- o Forest Stand Improvement (Code 666)
 - o Woody Residue Treatment (Code 384)
 - o Forest Trails and Landings (Code 655)
 - o Integrated Pest Management (Code 595)
 - o Prescribed Burning (Code 338)
 - o *Brush Management (314)*
- o Prior to implementation, provide and explain the state's Forestry BMP guidelines. *Refer to Missouri Forest Management Guidelines Unit 3 at <https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf>*
- o During implementation, provide technical assistance if requested by the participant.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o During implementation, provide technical assistance if requested by the participant. After implementation, review treatment documentation records and photographs to verify the enhancement was completed according to specifications in this enhancement, and in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666).

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666130Z

Increase on-site carbon storage

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Air Quality Impacts

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Use forest management techniques to maintain and increase on-site carbon storage. These include, but are not limited to, applying uneven-aged management, using longer rotations, retaining cavity/den trees, snags, and down woody debris, and protecting or increasing soil organic material.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Apply all of the following activities:
 - o Retain all snags and downed woody debris of 6" diameter or larger at the base.
 - o Identify leave-trees or clumps of trees that will be retained on site throughout their life span. These would ideally be trees that also provide wildlife habitat (e.g., future cavity/den trees, species that develop loose bark at older ages, mast producers, etc.).



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- o Close unneeded roads and limit off-road vehicular traffic to avoid displacing the forest litter layer.
- Apply at least one activity from among the following as appropriate for the site:
 - o Transition from even-aged to uneven-aged management.
 - o Use regeneration methods (e.g., shelterwood, seed-tree) that encourage retention of mature trees during the period when advanced regeneration develops.
 - o Adopt techniques for maintaining and/or improving soil quality, specifically retention of organic carbon.
 - o Maintain canopy cover to shade the forest floor and avoid hastening decomposition.
- During forest management activities, apply the following criteria:
 - o Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
 - o Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to maintain the stand in a fully stocked condition based on appropriate stocking guide.
 - o Describe the current and desired future condition of each stand that will be treated. Include the species, cover type, and size-class distribution. Stocking will be described in terms of crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol.
 - o Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
 - o The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- o *Prior to implementation, provide to NRCS a current or updated Forest Management Plan that includes activities required to implement the enhancement.*
- o Prior to implementation, understand that this enhancement only includes the development of a new or updated Forest Management Plan (FMP) that may reflect a change in management objectives. If the forest stand needs a treatment, it will be planned separately after the FMP is completed.
- o Prior to implementation, review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) that contains information needed to meet criteria for this enhancement.
- o Prior to implementation, develop an understanding of the management that is required to increase carbon storage appropriate for the resource setting to include the follow activities (Request NRCS technical assistance, as needed.):
 - o Transition from even-aged to uneven-aged management.
 - o Retaining dead wood, and selecting trees or clumps of trees that are intended to be permanently left on the site.
 - o Use regeneration methods (e.g., shelterwood, seed-tree) that encourage retention of mature trees during the period when advanced regeneration develops.
 - o Adopt techniques for maintaining and/or improving soil quality, specifically retention of organic carbon.
 - o Maintain canopy cover to shade the forest floor and avoid hastening decomposition.
- o Prior to implementation, for Forest Lands, work with professional forester to prepare or update a current FMP that includes activities required to implement this enhancement.
NRCS State Office will determine if a FMP will be required for Associated Ag Land or Farmstead settings. (Request NRCS technical assistance, as needed.)
- o Prior to implementation, as a part of developing or updating a FMP, arrange to have a professional forester or wildlife specialist:
 - o Identify and map areas, selected trees, or clumps of leave trees that can serve as wildlife habitat and that are intended to be left on site throughout their lifespan.



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- o Describe amounts and condition of standing snags and fallen woody debris with 6" or larger basal diameter.
 - o Identify and map trails or roads that can be planned for closure.
- o *Implement the following:*
 - o *Retain all snags and downed woody debris ≥ 6 " diameter at the base.*
 - o *Identify leave trees that provide wildlife habitat.*
 - o *Close unneeded roads and limit off road traffic.*
 - o *Maintain the stand in a fully stocked condition (between A and B lines on stocking chart).*
- o Prior to implementation, when stand treatment is needed, plan NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) with NRCS and a professional forester. All of the following implementation requirements apply to the application of treatment, which may occur in the future.
- o Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
 - o Road/Trial/Landing Closure and Treatment (Code 654)
 - o Woody Residue Treatment (Code 384)
- o Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- o During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- o During implementation, follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and in specifications provided by NRCS, to ensure that:
 - o overstory tree and understory species are retained to achieve all planned purposes and landowner objectives.
 - o establish required spacing, density, size-class distribution, number of trees, and amount of understory species to be retained.
 - o schedule treatments to maintain the stand in a fully stocked condition based on appropriate stocking guide.



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- avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- After implementation, ensure that retained leave areas are properly protected.
- After implementation, update the FMP to document treatment acres, completion dates and methods, and document representative treatments with digital photos.

After implementation, notify NRCS that the work has been completed and make treatment documentation available for NRCS review and certification. *Provide a map delineating treated acres, dates completed, acres treated, method utilized, and representative post-treatment photos.*

NRCS will:

- Prior to implementation, provide assistance with interpretation of a current or updated FMP for sites where this enhancement will be applied.
- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards (CPSs) as they relate to implementing this enhancement:
 - Forest Stand Improvement (Code 666).
 - Woody Residue Treatment (Code 384).
- As needed, prior to implementation, NRCS will provide technical assistance in:
 - Guiding the proper sequence and timing of planned FMP treatment activities to meet requirements to maintain and increase on-site carbon storage.
 - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- Prior to implementation, ensure that the participant has a current and complete FMP describing all treatment activities for the resource setting.



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- o During implementation, provide technical assistance if requested by the participant. During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After Implementation, verify the enhancement was implemented according to the NRCS Conservation Practice Standard Forest Stand Improvement Standard (Code 666) specifications and meets enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666132Z1

Crop tree management for mast production

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Forest stand improvement using crop tree management techniques to increase mast production.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Identify the number of mast crop trees to be developed based on site productivity and spacing guidelines for the mast tree species. See State guidelines.
- Crop tree crowns should be in the upper level of the forest canopy (dominant and/or codominant trees), and not suppressed by other tree crowns.
- Cut or kill all trees whose crowns touch the crown of the crop tree on four sides (three sides if adjacent to another crop tree), and leave additional space for large crown development of mast crop trees. Crop trees will have >15 feet of space on all treated sides.
- Retain a diversity of tree species to reduce the potential impact of an epidemic event (e.g. insect outbreak) that may kill some/all trees.
- Trees that are below the crown of the crop tree or are not affecting crown development will be left to provide protection from wind damage, limit epicormic sprouting, and provide diversity for wildlife habitat.
- Trees removed that have marketable quality can be sold.



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- All killed trees shall be left standing to provide wildlife habitat, except where snags will become a safety hazard (within 100 feet of a building, power line, road, etc.) or create a fire hazard. Snags that must be cut for safety reasons shall be left on site to become coarse woody debris on the forest floor (unless they create a fire hazard).
- As applicable, additional actions include:
 - Cutting damaging vines away from crop trees
 - Treatment of invasive plants that may be stressing crop trees
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (338).
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- o *Prior to implementation, provide to NRCS a current or updated Forest Management Plan (FMP) that includes activities required to implement the enhancement.*
- o Prior to implementation, identify the number of dominant and/or codominant mast producing crop trees to be developed based on site productivity and spacing guidance for mast trees, as required in state specific guidelines. (NRCS will provide technical assistance, as needed.)
- o During implementation, release all crop trees on all sides by killing competing trees within 15 feet of the crop tree's crown/canopy.
- o During implementation, retain a diversity of tree species, cut damaging vines away from crop trees, and treat invasive plants that may stress crop trees.
- o During implementation, leave all killed trees (unless removed as a merchantable product) standing to provide additional wildlife habitat, except where snags could become a safety hazard. Trees that must be cut for safety reasons will be left on site to become coarse woody debris on the forest floor.
- o During implementation, protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.

NRCS will:

- o Prior to implementation, as needed, provide technical assistance in determining sites for enhancement implementation that meet specified criteria, including the number of crop trees per acre needed and the spacing of those trees.
- o Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement (as applicable for the site):
 - o Forest Stand Improvement (Code 666)
 - o Integrated Pest Management (Code 595)
 - o Forest Trails and Landings (Code 655)
 - o Access Road (Code 560)
 - o Woody Residue Treatment (Code 384)



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- ☐ Prescribed Burning (338)
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, document the number of crop trees per acre and average spacing and verify the post treatment stand conditions meet the specifications developed for the crop tree release activity.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666133X

Forest Stand Improvement to rehabilitate degraded hardwood stands

Conservation Practice 666: FOREST STAND IMPROVEMENT

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: DEGRADED PLANT CONDITION – Inadequate Structure and Composition

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Hardwood forestland has been subject to poor logging practices (“high-grading”) for decades. Without professional forestry assistance the best species and individual trees are removed, often before maturity (“diameter-limit cutting”), leaving the poorest species and individual trees to regenerate the stand. Reversing this process requires cutting or killing poor quality trees while retaining any desirable species that might still be present. A combination of 3 silvicultural methods are applied: crop tree release, group selection (all trees removed from an area 0.25 to 1.0 acre in size) and small clearcuts (all trees removed from an area 1-3 acres in size).

Criteria

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.

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- Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.). Some crop tree species will meet multiple objectives (oak, cherry, black walnut, tulip-poplar, pine, spruce).
- Crop trees will receive a crown-touching release: any undesirable trees touching a crop tree crown will be cut or killed.
- Areas of 0.25 acre or more with no crop trees will be clearcut, up to 3 acres in size.
- Forest stand improvement activities will be planned and applied in a manner to meet the habitat requirements for wildlife species of concern as determined by the state's NRCS Wildlife Habitation Evaluation Guide (WHEG) and will be managed to achieve or maintain a value of 0.75 or greater.
- Invasive species will be controlled before tree cutting begins.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Treatment activities will be conducted during periods of the year that accommodate reproduction and other life-cycle requirements of the targeted wildlife and pollinator species.
- Retain a diversity of tree species, where possible, to reduce the potential impact of an epidemic event (e.g. insect outbreak) that may kill trees of some species.
- Trees removed that have marketable quality can be sold.
- Killed trees that do not interfere with tree regeneration shall be left standing to provide wildlife habitat, except where snags will become a safety hazard (within 100 ft. of a building, power line, road, etc.) or create a fire hazard. Snags that must be cut for safety reasons shall be left on site to become coarse woody debris on the forest floor (unless they create a fire hazard).
- As applicable, cut damaging vines away from crop trees
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.



CONSERVATION STEWARDSHIP PROGRAM

- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (code 338).
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- o *Provide to NRCS a current or updated Forest Management Plan (FMP) that includes activities required to implement the enhancement.*
- o Prior to implementation, work with professional Forester to develop forest management plan documenting which of the three methods will be used (crop tree release, group selection, or clear cut) and what stands they will be implemented.
- o Prior to implementation, work with professional Forester or NRCS to determine ways to implement the enhancement that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- o Prior to implementation, work with professional Forester or NRCS to protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation.
- o Prior to implementation, work with professional Forester or NRCS if temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- o Prior to implementation, work with professional Forester or NRCS to delineate areas to be treated on a map (s).
- o Prior to implementation, work with professional Forester or NRCS to complete job sheet NRCS Conservation Practice Standard Forest Stand Improvement (Code 666). Depending on method(s) specified in the plan address:
 - o Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.).
 - o Identify areas of 0.25 to 1 acre in size that will have group selection.
 - o Identify areas of 1-3 acres in size that will be clear cut.
 - o Specify how undesirable trees and shrubs will be cut or killed.

Stand #	Treatment Option



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to implementation, invasive species will be treated or treating concurrently with cut.
- o During Implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- o *During implementation, where crop tree release will be applied, select 20 to 75 crop trees per acre as recommended in the FMP based on the following criteria:*
 - o *Dominant of codominant canopy tree*
 - o *Desired species for mast production*
 - o *Healthy crown*
 - o *Minimal epicormics branching*
 - o *Good form.*
 - o *Adapted to the site.*
- o *During implementation, where no crop trees are present, kill all trees on areas 0.25 acre up to 3 acres in size.*
- o During implementation, verify that killed trees/snags that do not interfere with regeneration are left standing or cut and left on site (if safety hazard).
- o During Implementation, cut damaging vines away from crop trees.
- o After implementation, notify NRCS that implementation has been completed. *Provide map delineating treated acres, dates completed, acres treated, method utilized, representative post-treatment photos, a completed post-burn evaluation (if burning is used), and other documentation of applicable understory management.*

NRCS will:

- o Prior to implementation, provide and explain the following NRCS Conservation Practice Standards (CPSs) as they relate to implementing this enhancement.
 - o Integrated Pest Management (Code 595)
 - o Woody Residue Treatment (Code 384)
 - o Prescribed Burning (Code 338)
 - o Access Road (Code 560)



CONSERVATION STEWARDSHIP PROGRAM

- o Prior to Implementation, provide and explain, as needed, NRCS Conservation Practice Standard Forest Stand Improvement (666) and assist the participant in completing job sheet. Depending on method(s) specified in the plan address:
 - o Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.).
 - o Identify areas of 0.25 to 1 acre in size that will have group selection.
 - o Identify areas of 1-3 acres in size that will be clear cut.
- o Prior to implementation, assist landowner to determine ways to implement the enhancement that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- o Prior to implementation, assist landowner to protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. Provide and document with Participant on NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) job sheet.
- o Prior to implementation, if temporary access needed, provide participant with NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- o Prior to implementation, as needed, provide assistance in delineating treatment area on a map(s).
- o Prior to implementation, verify that invasive species have been treated or treating concurrently with cut.
- o Prior to implementation, Wildlife Habitat Evaluation Guide (WHEG) or State equivalent must be completed.
 - Existing condition WHEG score: _____**
 - Planned after implementation WHEG score: _____**
- o During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify that killed trees/snags that do not interfere with regeneration are left standing or cut and left on site (if safety hazard).
- o After implementation verify that damaging trees have been removed from crop trees.



CONSERVATION STEWARDSHIP PROGRAM

- o After implementation, Wildlife Habitat Evaluation Guide (WHEG) or State equivalent must be completed and have a value of 0.75 or greater.
- o **After implementation WHEG score:** _____
- o After Implementation, verify the enhancement was implemented according to the NRCS Conservation Practice Standard Forest Stand Improvement Standard (Code 666) specifications and meets enhancement criteria.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666133Z1

Creating structural diversity with patch openings

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Degraded Plant Condition

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Forest stand improvement that creates patch openings. Size and shape of patches will be based on characteristic natural wind disturbances, which will vary geographically and by forest type.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Describe the extent or size and orientation of treatment area(s).
- Forested acres planned for this enhancement must be treated during the contract period.
- Forests must have an “acceptable growing stock” level below 80 sq. ft. of basal area per acre.
- Forested acres targeted for patch development must contain species for regeneration from the NRCS state list of suitable trees. Species on this list have the ability to regenerate from seed, sprouts, or other natural regeneration sources.
- Size of patches to be treated can vary from 1 to 10 acres, be distributed throughout the forest and cannot total more than 50 percent of the area.
- Trees removed during patch development having marketable quality can be sold.



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- Slash and cull trees within patches must be mitigated to allow for natural regeneration to occur. This can be accomplished by killing remaining live trees in patch areas and following up with: 0 Windrowing or Wildlife piles OR Chipping or Removal for firewood
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities.
- Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- If management of the remaining forest area (between patch openings) provides a conservation benefit, management can be accomplished at the same time as patch opening creation. Use applicable criteria from NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) when managing the general forest area.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- *Prior to implementation, provide to NRCS a current or updated Forest Management Plan (FMP) that includes activities required to implement the enhancement.*
- Prior to implementation, select areas for patch openings that contain species for regeneration from the *NRCS state list of suitable trees* that have the ability to regenerate from seed, sprouts, or other natural means and document these are present and vigorous enough to regenerate. (NRCS will provide technical assistance, as needed.)
- Prior to implementation, with NRCS technical assistance, determine the size, shape, location, and distribution of openings throughout the forest, with the size of each opening being between 1-10 acres and the total acres in openings being less than 50% of eligible forest acres based on stocking. Locate openings in areas that lack crop trees and where there is an aggregation of trees that are:
 - At high risk of mortality or failure
 - Of low crown vigor
 - Of poor stem form or quality
 - Less-desirable species
- During implementation, manage slash and cull trees by windrowing, creating wildlife piles, chipping, cutting for firewood, and/or prescribed burning if appropriate.
- During implementation, protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.
- After implementation, provide NRCS a map showing the location of patches and photos documenting that patch cuts were completed according to specifications.

NRCS will:

- Prior to implementation, verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet.
- Prior to implementation, provide technical assistance in:
 - Identifying size, shape, location, and distribution of openings, including percentage of the stand that will be in openings, to meet the criteria within the enhancement guide sheet.



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- o Evaluating stocking and acceptable growing stock for both pre- and post-treatment stand conditions.
 - o Identifying desired species to be regenerated in the openings.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standards Forest Stand Improvement (Code 666), Woody Residue Treatment (Code 384), Prescribed Burning (Code 338), Integrated Pest Management (Code 595), and Forest Trails and Landings (Code 655) as they relate to implementing this enhancement.
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned patch openings were established to specifications developed for the site.

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666136Z3

Create patch openings to enhance wildlife food sources and availability

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN ADDRESSED: Fish and Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

Forest stand improvement that creates patch openings. Size, shape, and arrangement of patches will be based on natural features, and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically and by forest type, and by tree species desired from natural regeneration. The treatment will create diversity in stand composition and structure, and enhance wildlife food availability. Forest stand improvement (FSI) can be used to create small openings where all of the trees are removed. Creating openings may serve to restore natural plant communities, and achieve or maintain a desired understory plant community to provide wildlife habitat. Habitat for certain wildlife species is improved by increasing by the amount of edge, cover and diversity of the tract.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.



CONSERVATION STEWARDSHIP PROGRAM

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- This enhancement may be applied only to forested acres that have an “acceptable growing stock” level. For tree species with stocking charts, this is at least the B line, the lowest level of a fully stocked stand.
- The size of patches to be treated can vary from 1 to 10 acres, be distributed throughout the forest and cannot total more than 30% of the acres meeting the “acceptable growing stock” level.
- Forested acres targeted for patch development must contain species for regeneration from the NRCS state list of suitable trees. Species on this list have the ability to regenerate from seed, sprouts, or other natural regeneration sources.
- Preferentially locate patch openings in areas that lack crop trees or wildlife trees, and where there is an aggregation of trees that are:
 - At high risk of mortality or failure (unless retained as a wildlife tree)
 - Of low crown vigor
 - Of poor stem form and quality
 - Less-desirable species.
- Trees removed during patch development having marketable quality can be sold.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).



CONSERVATION STEWARDSHIP PROGRAM

- Slash and cull trees must be managed if the material interferes with the production of wildlife food. The material may be managed as follows:
 - o Windrowing
 - o Wildlife piles
 - o Chipping
 - o Cutting for firewood
 - o In appropriate stands, prescribed burning may be used.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Control measures may be used on undesirable competing vegetation, to favor the development of desirable vegetative communities on the site. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595).
- For areas adjacent to patch openings, leave residual trees and shrubs that provide a diversity of wildlife food sources.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.



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- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- If management of the remaining forest area (between patch openings) provides a conservation benefit, management can be accomplished at the same time as patch opening creation. Use applicable criteria from NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) when managing the general forest area.

Documentation and Implementation Requirements:

Participant will:

- o Prior to implementation, work with NRCS or your forester to develop or update a forest management plan which will include management practices you will apply to address the documented resource concerns. *Provide to NRCS a current or updated Forest Management Plan that includes activities required to implement the enhancement.* (NRCS will provide technical assistance, as needed.)
- o Prior to implementation, select areas for patch openings that contain species for regeneration from the NRCS state list of suitable trees that have the ability to regenerate from seed, sprouts, or other natural means and document these are present and vigorous enough to regenerate. (NRCS will provide technical assistance, as needed.).
- o Prior to implementation, determine the size, shape, location, and distribution of openings throughout the forest, with the size of each opening being between 1-10 acres and the total acres in openings being less than 30% of eligible forest acres based on stocking. Locate openings in areas that lack crop trees or wildlife trees and where there is an aggregation of trees that are:
 - o At high risk of mortality or failure
 - o Of low crown vigor
 - o Of poor stem form or quality
 - o Less-desirable species



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- o *Prior to implementation, for oaks, >400 advanced regeneration seedlings/saplings per acre at least 3 ft in height must be present prior to harvest cut.*
- o *Prior to implementation, offered forested acres will have a site index of at least 55 feet.*
- o *During implementation, establish a minimum of 1 patch opening per 40 acres by removing all stems >1inch diameter at breast height (DBH).*
- o *During implementation, openings must be located at least 1/8 mile from permanent openings such as pasture, crop field, etc.*
- o *After implementation, forested acres must contain species for regeneration from the following list:*
 - o *Any oak adapted to and naturally occurring on the site. Favor a mixture of white oak group and red oak group species.*
 - o *Native pecan and any hickory adapted to and naturally occurring on the site.*
 - o *Persimmon*
 - o *Red mulberry*
 - o *Black cherry*
 - o *Black gum*
 - o *Pawpaw*
 - o *Wild plum*
 - o *Hawthorn species*
 - o *Dogwood species*
- o *During implementation, openings should only be implemented using chainsaws. Treat stumps of undesirable species.*
- o *During implementation, any invasive or undesirable understory species, such as bush honeysuckle, should be treated prior to understory management.*
- o *During implementation, manage slash and cull trees by windrowing, creating wildlife piles, chipping, cutting for firewood, and/or prescribed burning if appropriate. During implementation, protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.*
- o *After implementation, provide NRCS a map showing the location of patches and photos documenting that patch cuts were completed according to specifications.*
- o *After implantation, submit to NRCS field office a field log including:*
 - o *Map showing stand(s) treated.*



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- o *Identify the locations and shapes of the patch openings. Document the size of each patch and total percentage of the stand in openings.*
- o *Site suitability and acceptable growing stock evaluation for each stand where openings will be created.*
- o *Specific stand-stocking guidelines, including evaluation of acceptable growing stock, will document both the pre- and post-treatment stand condition.*

NRCS will:

- o Prior to implementation, verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet.
- o Prior to implementation, provide technical assistance in:
 - o Identifying size, shape, location, and distribution of openings, including percentage of the stand that will be in openings, to meet the criteria within the enhancement guide sheet.
 - o Evaluating stocking and acceptable growing stock for both pre- and post-treatment stand conditions.
 - o Identifying desired species to be regenerated in the openings.
- o Prior to implementation, provide and explain NRCS Conservation Practice Standards Forest Stand Improvement (Code 666), Woody Residue Treatment (Code 384), Prescribed Burning (Code 338), Integrated Pest Management (Code 595), and Forest Trails and Landings (Code 655) as they relate to implementing this enhancement. *Complete and provide Forest Stand Improvement Job Sheet (JS-MO666) and Temporary Forest Openings for Wildlife Job Sheet (JS-MO645).*
- o During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- o After implementation, verify the planned patch openings were established to specifications developed for the site.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E666137Z2

Summer roosting habitat for native forest-dwelling bat species

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN ADDRESSED: Fish & Wildlife – Inadequate Habitat

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Create new potential roost trees within upland and riparian forests to achieve desired summer habitat for forest-dwelling bat species.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- These criteria and any tree removal activities will be coordinated with U.S. Fish and Wildlife Service (USFWS). This includes the establishment of minimum criteria to meet the habitat requirements of the bat species of concern while avoiding potentially detrimental disturbances during the maternity period.
- Create additional snags within the forested acres by girdling/killing live trees. When choosing trees to kill, consider that the majority of snag-roosting bats prefer the largest available snags, which often extend above the forest canopy and retain bark for a longer



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period of time. Also focus on killing trees that are undesirable for quality forest products due to species or form.

- Promote use of live trees with loose or exfoliating bark by killing all trees adjacent (canopies within 15 feet of habitat tree) to trees determined to have desired bark characteristics, as defined by NRCS state technical staff. Larger diameter trees should be considered as habitat trees, as desirable bark characteristics tend to improve with the

size and age of the tree. Large/mature trees also develop splits, breaks, dead limbs, and cavities that serve as roosting areas.

- Habitat trees should be distributed evenly across the treated acres.
- The combined snags and live, loose bark trees should be created or maintained at a combined rate as determined to be necessary to meet the habitat requirements of the bat species of concern and the specific forest type, as defined by the USFWS and NRCS state technical staff.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- When determining which trees will be killed for snag creation, and/or used to create loose/exfoliating bark, consider effects on the remaining stand.

o Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.

o Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural stocking guides.

o Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, work with NRCS to complete a wildlife habitat evaluation guide or State equivalent. *Utilize either the Forest Community or Savanna and Open Woodlands WHAG that results in a planned score of at least 0.5.*
- Prior to implementation, obtain a wildlife habitat management plan *(a current or updated Forest Management Plan that includes activities and information to implement the enhancement will suffice)* for the targeted species suite which includes:
 - Wildlife Habitat Evaluation Guide scores for benchmark and desired conditions.
 - The minimum criteria to meet the targeted species habitat requirements.
 - A plan map indicating the stands and individual trees selected for the treatment.
 - A list of NRCS Conservation Practice Standards that will be applied to reach the desired habitat conditions
- *During implementation, establish roost trees by retaining and managing existing live tree species with loose or exfoliating bark (shagbark/shellbark hickory and white oaks) based on the following rate per acre:*
 - *Two (2) trees greater than 19 inches diameter at breast height (DBH).*
 - *Six (6) trees must 10 to 19 inches DBH.*
- *During implementation, these selected live trees must be sited where sunlight strikes the bark for at least a part of the day. Areas such as forest openings and forest edges provide this attribute. If sunlight does not strike the bark, then all trees within 15 feet of the canopy must be killed or removed. Removal of trees (i.e. cutting down) must occur outside the date of the “no cut” period.*
- *During implementation, if the size/number of live tree species with loose or exfoliating bark is not available, then snags must be established to provide roosting sites. Snags shall be created at the following rate per acre:*
 - *Two (2) snag trees >19 inches DBH.*
 - *Six (6) snag trees 10-19 inches DBH.*
 - *Two (2) snag trees <10 inches DBH.*



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- *During implementation, snag trees >19 inches DBH must be sited where sunlight strikes the bark for at least a part of the day. If sunlight does not strike the bark, then all trees within 15 feet of the canopy must be killed or removed. Removal of trees (i.e. cutting down) must occur outside the date of the “no cut” period. Trees killed or removed to allow sunlight to strike the bark do not count toward the snag creation of the 10 to 19 inches DBH and <10 inches DBH classes, as snags should be distributed evenly across the treated acres.*
- *During implementation, snags (or tree killed to allow sunlight to strike bark) may be established with girdling or hack and squirt methods.*
- *During implementation, when possible, site snag trees in the >19 inches DBH size class within 0.6 miles of a permanent water source.*
- During Implementation, keep a field log which includes:
 - Treatment dates
 - Count of treated (girdled) trees and treatment actions completed (i.e. removal of canopies within 15 feet of habitat tree).
 - Count of treated (girdled) trees and treatment actions completed (i.e. removal of canopies within 15 feet of habitat tree).
- During implementation, notify NRCS of any planned changes, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- After implementation, notify NRCS that implementation has been completed. After implementation, make the follow items available for NRCS review to verify implementation of the enhancement:
 - Wildlife Habitat Management Plan/*Forest Management Plan*.
 - Wildlife habitat plan treatment map *that indicates locations and type of each structure maintained/installed.*
 - Field log *documenting methods that were utilized to create snags (and/or manage adjacent trees to allow sunlight to strike bark) and date completed.*
 - Digital photographs *with location of each documented on the map that identifies structure locations.*



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NRCS will:

- ☐ Prior to implementation, assist the participant in completing the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) or State equivalent.

Target Bat

Species of concern: _____

Current/Existing Condition WHEG score: _____

Planned WHEG score after implementation: _____

- ☐ Prior to implementation, provide participant assistance in the development of a wildlife habitat management plan.
- ☐ Prior to implementation, provide participant with additional technical assistance to the, as requested.
- ☐ During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After Implementation, verify implementation of the wildlife habitat management plan, by reviewing field log records kept and digital photographs taken during enhancement implementation.
- ☐ After implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) or State equivalent.

WHEG score after implementation: _____

NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM

