



ADVANCED GRAZING MANAGEMENT SUPPLEMENTAL PAYMENT

CONSERVATION STEWARDSHIP PROGRAM

Supplemental Payment – Advanced Grazing Management

CONSERVATION PRACTICE: 314 - Brush Management; 315 - Herbaceous Weed Control; 338 - Prescribed Burning; 382 - Fence; 472 - Access Control; 511 - Forage Harvest Management; 528 - Prescribed Grazing; 590 - Nutrient Management; 595 - Integrated Pest Management; 645 - Upland Wildlife Habitat Management

APPLICABLE LAND USE: Pasture & Range, Forest (Conifer)

RESOURCE CONCERN: Soil, Water, Animals, Plants & Air

ENHANCEMENT LIFE SPAN: Dependent upon Component Enhancement

Activity Description

The Advanced Grazing Management (AGM) Supplemental Payment improves the benefit of managed grazing by integrating an additional suite of enhancements as a grazing system that address resource concerns associated on the land being contracted.

Criteria

- AGM offers the choice to select one of the following prescribed grazing enhancements:
 - For Range: E528N, E528P, E528R; or for Pasture: E528G, E528P, E528R, E528S or for Conifer Forests: E528H, E528L, E528T
 - And three additional enhancements (choose 3 from the list below) to provide a resource management level approach.
- Enhancements selected should be appropriate to the operation and address or improve resource concerns existing on the land. Some enhancements within the additional group may not fit together on certain sites.
- Enhancements shall not be “stacked” to increase payment for the same activity.
- Enhancements shall not be selected that contradict the purpose of another enhancement.
- Criteria for all four individual enhancements apply and must be followed. All documentation requirements for the individual enhancements must be met.
- If an applicant has already adopted one or more of the core or additional enhancements, the applicant may schedule the remaining enhancements as long as the applicant has not



CONSERVATION STEWARDSHIP PROGRAM

already implemented the activity. Payments may not be received for any activity that is already adopted.

- Applicants may choose to adopt the AGM on any portion of the agricultural operation and will be required to install the core or additional enhancements at the grazing unit level on all applicable acres where the enhancement suite is being adopted.
- The AGM additional enhancements are scheduled in the year in which all enhancements in the planned AGM suite are applied but no later than the third fiscal year of the contract.
- The AGM and its enhancement suite, once adopted, may continue to be implemented in all subsequent years through the end of the contract.
- The AGM’s Life Span is dependent upon the chosen additional enhancement lifespan. Each enhancement has its own individual life span and will need to be implemented accordingly.

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 enhancement in the AGM suite.
- Prior to and after implementation, document the planned amount, fields, applied amount and the year each enhancement in the AGM suite is applied:

Range Options:

Supplemental Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
CORE PRESCRIBED GRAZING ENHANCEMENTS ADOPT ONE CORE ENHANCEMENT FROM THIS GROUP				
E528N				
E528P				
E528R				



CONSERVATION STEWARDSHIP PROGRAM

ADOPT THREE ADDITIONAL ENHANCEMENTS FROM THIS GROUP (NRCS contracts the enhancement with the appropriate cost list supplement component when available)				
E314A				
E315A				
E338A				
E382A				
E382B				
E472A				
E595E				
E645A				
E645D				

Pasture Options:

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
CORE PRESCRIBED GRAZING ENHANCEMENTS ADOPT ONE CORE ENHANCEMENT FROM THIS GROUP				
E528G				
E528P				
E528R				
E528S				



CONSERVATION STEWARDSHIP PROGRAM

ADOPT THREE ADDITIONAL ENHANCEMENTS FROM THIS GROUP (NRCS contracts the enhancement with the appropriate cost list supplement component when available)				
E314A				
E315A				
E338A				
E382A				
E382B				
E472A				
E511B				
E590C				
E595E				
E645A				
E645D				



CONSERVATION STEWARDSHIP PROGRAM

Forest (Conifer Only) Options:

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
CORE PRESCRIBED GRAZING ENHANCEMENTS ADOPT ONE CORE ENHANCEMENT FROM THIS GROUP				
E528H				
E528L				
E528T				
ADOPT THREE ADDITIONAL ENHANCEMENTS FROM THIS GROUP (NRCS contracts the enhancement with the appropriate cost list supplement component when available)				
E314A				
E315A				
E338A				
E382A				
E472A				
E645A				
E645D				



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 PLANNING ACTIVITY

E199A

CONSERVATION STEWARDSHIP PROGRAM

CSP Comprehensive Conservation Plan

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

RESOURCE CONCERNS ADDRESSED: Applicable State Priority Resource Concern Categories

LIFE SPAN: 1 Year

Activity Description

The Conservation Stewardship Program (CSP) Comprehensive Conservation Plan (CCP) – E199A is a conservation plan developed by a Technical Service Provider (TSP) that will assess and recommend conservation alternatives to address each State priority resource concern category (PRCC) on all land uses included in the operation where stewardship thresholds are not met at time of application nor by the end of the CSP contract and not addressed through current, written conservation plans.

The CSP CCP – E199A is a planning activity a participant can elect to add to their contract, with payment only occurring one-time. The CSP CCP – E199A is not an activity used to reach or meet Stewardship Threshold Eligibility (STE) and can only be scheduled as a supporting contract item in addition to activities scheduled in a CSP contract.

CSP CCP – E199A will provide conservation alternatives to meet or exceed identified and eligible PRCCs that can be implemented by the participant(s) through any number of means, but outside the CSP contract in which the CSP CCP-E199A is included.

Criteria

NRCS has completed the Conservation Assessment and Ranking Tool (CART) and uses the CART Report to identify all State PRCCs that have not met stewardship thresholds by land use at time of application nor by the end of the CSP contract.



CONSERVATION STEWARDSHIP PROGRAM

- Participant is enrolled in the CSP program and has scheduled the CSP CCP E199A activity in the CSP contract.
- Participant must select a certified TSP to complete the CSP CCP - E199A.
- The TSP must follow the requirements of Conservation Planning Activity (CPA) – Conservation Plan - 199 or other land-use specific conservation planning activity documents such as CPA – 102 Certified Nutrient Management Plan (CNMP) or CPA – 106 Forest Management Plan (FMP) to develop at least one conservation system alternative to treat each identified and applicable State PRCCs for each land use in the operation.
- The TSP must be certified in the NRCS Registry of Technical Service Providers for all specific conservation planning activities to be used in development of the CSP CCP – E199A.

Documentation and Implementation Requirements

Participant(s) will:

- Select a certified TSP from the NRCS Registry of Technical Service Providers ensuring the TSP is certified for all specific conservation planning activities used in development of the CSP CCP – E199A.
- Work with the TSP during the development of the plan to identify conservation objectives for each land use included in the operation.
- Work with the TSP in development of the plan to provide records including CART summary reports and other information needed to formulate alternatives that will meet or exceed the identified State PRCCs for each land use.
- Provide information as requested by NRCS to certify completion of the CSP CCP – E199A.

NRCS will:

- Complete a CART assessment as part of the CSP application process that identifies the State PRCCs not met at the time of application nor by the end of the contract for each land use in the operation. State PRCCs not met at time of application but met by the end of the contract are not eligible for inclusion in the CSP CCP – E199A.
- Identify any current written conservation plans (e.g. Conservation Technical Assistance (CTA), Environmental Quality Incentives Program (EQIP) CAPs, CPAs, CNMPs, FMPs, etc.) that the participant has not yet implemented which identify conservation activities to address State PRCCs not met through the CSP contract.



CONSERVATION STEWARDSHIP PROGRAM

Table 1: State PRCCs addressed through another conservation plan.

Land Use	State PRCC	Plan Type	Applicable Land Use(s)

- Provide to the participant a list of all State PRCCs by Land Use that the TSP must evaluate for the CSP CCP - E199A (List in Table 2), excluding State PRCCs addressed in Table 1.

Table 2: Unmet State PRCCs that must be addressed in the plan.

Unmet State PRCC	Applicable Land Use(s)



CONSERVATION STEWARDSHIP PROGRAM

- CSP CCP – E199A is a one-time payment to be planned in any year of the contract and required to be completed by the end of the contract.
- Review all applicable conservation planning activity requirements and documentation provided by the TSP ensuring all identified and eligible State PRCCs are planned to be addressed as required of the CSP CCP – E199A.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Number of Land Uses _____

Types of Land Uses _____

Number of Eligible State PRCCs Planned Listed by Land Use _____

Payment Schedule Scenario _____

FY Planned _____

FY Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E314A

Brush management to improve wildlife habitat

Conservation Practice 314: Brush Management

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

RESOURCE CONCERN: Plants; Animals

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

- 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.
- Identify wildlife species of concern and landscape specific brush habitat functionality that is consistent with the related ecological site steady state or another desired state that will meet the objective.
- 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).



CONSERVATION STEWARDSHIP PROGRAM

- Evaluate wildlife habitat with the state NRCS WHEG and manage for a value of 0.60 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:

- Prior to implementation, meet with NRCS to complete the Wildlife Habitat Evaluation Guide (WHEG) evaluation at the site.
- Prior to implementation, determine and write down clear objectives for brush management and implementation of this enhancement.
- Prior to implementation, develop a map delineating the areas to be treated and enrolled in this enhancement.
- During implementation, maintain records of applied treatments (pesticide used, rate applied, timing, etc.) and grazing restrictions. The records must support the label requirements for re-entry or grazing restrictions when applicable.
- After implementation, reassess habitat condition with NRCS using the WHEG.
- After implementation, provide records for review by NRCS to verify enhancement was implemented to meet criteria.

NRCS will:

As needed, provide technical assistance to participant as requested.

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Brush Management (Code 314) as it relates to implementing this enhancement.
- Prior to implementation, confirm brush management and grazing management plan objectives clearly identify the wildlife of concern for the area.
- Prior to implementation, meet with participant to complete WHEG evaluation at the site.

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

- Prior to implementation, NRCS will make cover or density measurements at georeferenced transects on key areas within the treatment area.
- 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.

E314A - Brush management to improve wildlife habitat	April 2021	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- After implementation, review record of applied treatment (pesticide used, rate applied, timing, etc.) and grazing restrictions.
- After implementation, reassess habitat condition using the Wildlife Habitat Evaluation Guide.
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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E314A

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E314A the following addition criteria apply to Indiana:

- Approved biological techniques include:
 - Grazing animals (primarily through the use of goats) to target undesirable vegetation.
 - Use of a portable torch to spot flame or burn undesirable plants.

This also applies to the control of Eastern Redcedar by girdling (without chemicals).

- NRCS will not develop chemical treatment recommendations. NRCS may provide clients with acceptable chemical control references.
- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Notes and comments on the National Enhancement:

- Use the appropriate Indiana Land Use WHEG. Some wildlife habitat conditions can take years to develop. Planned WHEG or the after Implementation WHEG score should be based on when the contract expires or what you expect the site to look like 5 years from the initial evaluation.
- If the final planned WHEG score exceeds 0.5 but does not meet the national requirement of 0.6, contact the State Biologist for a secondary WHEG review.
- Indiana 314 Brush Management (non-crop) Job Sheet for Invasive Woody Species may be utilized for planning (EFOTG, Section IV, 314 Brush Management). Identify the wildlife species of concern in the "Objectives of Treatment" section.
- Not compatible with most 666 enhancements
- Formerly: E314133Z and E314134Z



CONSERVATION ENHANCEMENT ACTIVITY

E315A

CONSERVATION STEWARDSHIP PROGRAM

Herbaceous weed treatment to create desired plant communities consistent with the ecological site

CONSERVATION PRACTICE: 315 - Herbaceous Weed Treatment

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

RESOURCE CONCERN: Plant, Wildlife

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Mechanical, chemical, or biological, herbaceous weed treatment will be used to control targeted, herbaceous weeds 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 weed 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 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.

E315A - Herbaceous weed treatment to create desired plant communities consistent with the ecological site	April 2022	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Treatment periods will accommodate reproduction and other life-cycle requirements of target recorded wildlife and/or 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.

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), 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 application method, timing, and amount applied as recommended by NRCS. Refer to NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315).



CONSERVATION STEWARDSHIP PROGRAM

Treatment Date	
Treatment Method	
Amount Applied (acres)	

- 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, application method and amount (acres) applied.

NRCS will:

- Prior to implementation and as needed, NRCS will provide technical assistance.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Herbaceous Weed Treatment (Code 315) as it relates to implementing this enhancement.
- 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.
- 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.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.



- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E315A

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E315A the following addition criteria apply to Indiana:

- There are no fully approved ESD's for Indiana; base specifications on best approximation of desired plant community from sources such as scientific literature, professional experts or personal knowledge of the community.
- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E315A the following additional documentation requirements apply in Indiana:

- Since no fully approved ESDs are available for Indiana, there is no requirement to provide documentation of the ESD or Reference Sheet.
- NRCS will not develop chemical treatment recommendations. NRCS may provide clients with acceptable chemical control references.

Notes and comments on the National Enhancement:

- Provisional ESD's can be found at [Indiana | Field Office Technical Guide | NRCS - USDA](#) . or on the Ecological Site Assessment tab in Web Soil Survey
- Do not use herbaceous weed treatment associated with this enhancement to prevent or degrade desired plant communities and habitats consistent with ecological site from establishing or persisting.
- Compatible with all enhancements
- Formerly: E315132Z, E315133Z, E315134Z



CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E327A

Conservation cover for pollinators and beneficial insects

Conservation Practice 327: Conservation

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

RESOURCE CONCERN: Animals

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

A. Pollinators

- NRCS at the state level will develop lists of plants suitable for pollinator habitat.

The lists must emphasize as many native species as practical.

E327A – Conservation cover for pollinators and beneficial insects	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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.
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 provides at least 80% soil cover



CONSERVATION STEWARDSHIP PROGRAM

when visually estimated and 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).

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. 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





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- 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.
- During implementation, purchase specified seed mix or plant materials that meets pollinator-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 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.
- After implementation, take and provide for review photographs as documentation of pollinator habitat area condition.

NRCS will:

- Prior to implementation, discuss with participant the proposed habitat areas to verify they are in locations suitable for the enhancement.
- Prior to implementation, provide participant with suitable plant 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 pollinator habitat plantings)
- After implementation, verify successful establishment (per planting criteria above) by review of documentation and photographs.



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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E327A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E327A the following criteria apply in Indiana:
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool (primary purpose pollinator) will be used when developing seeding mixes for this practice. Mixes generated in the seeding tool, for the specific resource concerns identified, will meet the criteria of this enhancement.
 - To encourage the forb component, it is strongly encouraged to sow the seeding mixture during the dormant season (12/1 to 4/1).
 - Any prepackaged mixes must be approved prior to seeding.
 - Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E327A the following additional documentation requirements apply in Indiana:
 - Participants will be provided a suitable planting list from the Seeding Tool (Wildlife Seeding Calculator for herbaceous plantings, General Calculator for Trees or Shrubs) listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice.



- Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

CONSERVATION STEWARDSHIP PROGRAM

Notes and comments on this National Enhancement

- A minimum 25 foot insecticide free buffer is required as part of this enhancement.





CONSERVATION ENHANCEMENT ACTIVITY

E327B

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: Animals

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



CONSERVATION STEWARDSHIP PROGRAM

(FOTG). Milkweed seeds are included in meeting the 60% minimum because milkweeds 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) or Wildlife Habitat Planting (Code 420).
- Successful establishment is when the planting provides at least 80 percent soil cover when visually estimated, and resultant cover consists of at least 500 milkweed plants



CONSERVATION STEWARDSHIP PROGRAM

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 shall be regularly inspected for invasive and/or noxious plants or other plants that may compromise the purpose of this enhancement. Undesirable species shall be controlled using Individual Plant Treatment methods, for example, spot-spraying with herbicide or physical removal of individual plants.



CONSERVATION STEWARDSHIP PROGRAM

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) or Wildlife Habitat Planting (Code 420).
- 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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E327B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E327B the following additional criteria apply in Indiana:
 - o A Wildlife Habitat Evaluation Guide (WHEG), must be used to show that 0.5 planning criteria has been met for the inadequate wildlife habitat resource concern. Use the existing Primary Habitat Suitability Index to determine this score. o This enhancement is intended to enhance existing habitat.
 - o If there is currently no habitat, or the existing condition is poor, the participant may schedule CPS 420 in addition to E420. The planned Primary Habitat Suitability Index WHEG score for CPS 420 should bring the WHEG score to a minimum of a 0.5.
 - o Monarch Wildlife Habitat Evaluation Guide (WHEG): Midwest Edition 2.0 will be used to determine the final planned WHEG value after the enhancement or combination of conservation practices and enhancements are applied.
 - o The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool (primary purpose pollinator) will be used when developing seeding mixes for this practice. Mixes generated in the seeding tool, for the specific resource concerns identified, will meet the criteria of this enhancement.
 - o To encourage the forb component, it is strongly encouraged to sow the seeding mixture during the dormant season (12/1 to 4/1).
 - o Any prepackaged mixes must be approved before seeding.
 - o Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.



INDIANA SUPPLEMENT TO

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E327B the following additional documentation requirements apply in Indiana:
 - o Participants will be provided suitable planting list from the Seeding Tool listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - o Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - ☐ Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice
 - ☐ Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.



Notes and comments on this National Enhancement

**CONSERVATION
STEWARDSHIP
PROGRAM**

- The National Enhancement has been updated to include new Monarch Habitat planning guidance. This includes:
 - The 2018 Version of the Monarch WHEG should be used. This new WHEG includes the new planning guidance below. To be eligible for this enhancement, the *planned* WHEG score must be "excellent."
 - Mixes shall include at least one (1) milkweed species, and the total of all milkweed seed will represent at least 1.5% of the mix. At least 60% of the forb seed will be monarch preferred species. The Indiana Seeding Tool has been updated to account for this change. Be sure the most current version of the seeding tool is being used.





CONSERVATION ENHANCEMENT ACTIVITY

E328A

CONSERVATION STEWARDSHIP PROGRAM

Resource conserving crop rotation

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Soil; Plants

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)
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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):
 - With at least one other crop in the rotation, include a perennial grass grown at least 2 years from time of planting;
 - With at least one other crop in the rotation, include a legume that is grown at least 2 years from time of planting;
 - 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;
 - With at least one other crop in the rotation, include a grass-forbs or legume-grass-forbs mixture, in which at least the grass component of the mixture is grown at least 2 years from time of planting, or
 - With at least two other crops in the rotation, include a non-fragile residue or high residue crop or a crop that efficiently uses soil moisture, reduces irrigation water needs, or is considered drought tolerant. Neither the crop residue nor the cover crop shall be harvested or grazed.



Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- Y 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)

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

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



CONSERVATION STEWARDSHIP PROGRAM

- Y Prior to implementation, use the 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 = _____**
- Y During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- Y After implementation, if the applied crop rotation is different than the planned crop rotation, use the 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



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY
E328A**

**CONSERVATION
STEWARDSHIP
PROGRAM**

Additional Criteria for INDIANA

Follow crop rotation guidance indentified on the enhancement jobsheet. A resource conserving crop can be identified as:

1. A minimum three year rotation with a perennial grass, a perennial legume or a combination of these, and can include other forbs, grown for a minium of 2 years from time of planting and at least one other crop in the rotation.
--OR--
2. A minimum three year rotation that includes a small grain with a cover crop (legume, forb, grass or combination) interseeded or planted after harvest and must have two other crops in the rotation.

Resource Conserving Crop Types:

Perennial Grasses and Legumes <u>1/</u>	Small Grain Crops <u>2/</u> + (must also include a cover/green manure crop)	Cover/Green Manure Crops <u>3/</u>
Alfalfa Alsike Clover Birdsfoot Trefoil Festulolium Kentucky Bluegrass Lespedeza, Korean, common Orchardgrass Perennial Ryegrass Red Clover Redtop Smooth Brome Tall Fescue Timothy White Clover Wildrye (Canada, Riverbank, Virginia)	Barley Millet Oats Rye (Cereal) Triticale Wheat Footnotes: <u>1/</u> Cover must be grown for one year after the seeding year. Must have at least one Other crop in rotation. <u>2/</u> Annual (winter or spring) cereal crops. Not harvested for silage, straw, or biomass. Only a Resource Conserving Crop if a cover crop/green manure crop is inter-seeded or planted after small grain harvest and in a rotation with at least 2 other crops. <u>3/</u> Cover to be established early enough in growing season to provide adequate cover. May <u>not</u> be harvested or grazed.	Alsike Clover Annual Ryegrass Barley Buckwheat* Canola/rape* Cowpeas Crabgrass (red river) Crimson Clover Field Peas/winter peas Hairy Vetch Millet Oats Radish, forage &/or oilseed* Red Clover Rye (Cereal) Sorghum-Sudangrass Hybrids Triticale Turnips* Wheat *May only be used if in a mix with a grass or a legume.



Refer to the Agronomy Technical Note #2 *Conservation Crop Rotation for Soil Quality and Soil Health* found on eFOTG, Section 1→Technical Notes→Agronomy Technical Notes for more information.

CONSERVATION STEWARDSHIP PROGRAM

If there are additional crops you would like considered for the rotation not listed here, contact the State Soil health Specialist (Amanda Kautz, amanda.kautz@usda.gov).





CONSERVATION ENHANCEMENT ACTIVITY

E328B

CONSERVATION STEWARDSHIP PROGRAM

Improved resource conserving crop rotation

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Plants

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)
- 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



CONSERVATION STEWARDSHIP PROGRAM

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):
 - Additional growing year for perennial resource conserving crop
 - Perennial resource conserving crop (grass or grass/legume) substituted for a row crop
 - 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:

- 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)

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



CONSERVATION STEWARDSHIP PROGRAM

- 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 = _____**

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

E328B - Improved resource conserving crop rotation	July 2019	Page 4
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**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E328B

Additional Criteria for INDIANA

Existing crop rotation must already include at least one resource conserving crop found on this table and follows the the Resource Conserving Crop Rotation guidance found in the footnotes.

Resource Conserving Crop Types:

Perennial Grasses and Legumes <u>1/</u>	Small Grain Crops <u>2/</u> + (must also include a cover/green manure crop)	Cover/Green Manure Crops <u>3/</u>
Alfalfa Alsike Clover Birdsfoot Trefoil Festulolium Kentucky Bluegrass Lespedeza, Korean, common Orchardgrass Perennial Ryegrass Red Clover Redtop Smooth Brome Tall Fescue Timothy White Clover Wildrye (Canada, Riverbank, Virginia)	Barley Millet Oats Rye (Cereal) Triticale Wheat Footnotes: <u>1/</u> Perennial cover must be grown for one year after the seeding year. Must have at least one Other crop in rotation. <u>2/</u> Annual (winter or spring) cereal crops. Not harvested for silage, straw, or biomass. Only a Resource Conserving Crop if a cover crop/green manure crop is inter-seeded or planted after small grain harvest and in a rotation with at least 2 other crops. <u>3/</u> Cover to be established early enough in growing season to provide adequate cover. May <u>not</u> be harvested or grazed.	Alsike Clover Annual Ryegrass Barley Buckwheat* Canola/rape* Cowpeas Crabgrass (red river) Crimson Clover Field Peas/winter peas Hairy Vetch Millet Oats Radish, forage &/or oilseed* Red Clover Rye (Cereal) Sorghum-Sudangrass Hybrids Triticale Turnips* Wheat *May only be used if in a mix with a grass or a legume.

Refer to the technical note Agronomy Technical Note #2 *Conservation Crop Rotation for Soil Quality and Soil Health* found on eFOTG, Section I→Technical Notes→Agronomy Technical Notes for more information. If there are additional crops you would like considered for the



rotation not listed here, contact the State Soil health Specialist (Amanda Kautz, amanda.kautz@usda.gov).

CONSERVATION STEWARDSHIP PROGRAM

To enhance the existing Resource Conserving Crop Rotation, use this list of Perennial grasses and legumes to either:

1. Add an additional growing year of a perennial crop,
2. Substitute a perennial crop for a row crop, or
3. Convert existing legume perennial crop to perennial grass or grass/legume crop.

Perennial Grasses and Legumes 1/

- Alfalfa
- Alsike Clover
- Birdsfoot Trefoil
- Festulolium
- Kentucky Bluegrass
- Lespedeza, Korean, common
- Orchardgrass
- Perennial Ryegrass
- Red Clover
- Redtop
- Smooth Brome
- Tall Fescue
- Timothy
- White Clover
- Wildrye (Canada, Riverbank, Virginia)





CONSERVATION ENHANCEMENT ACTIVITY

E328C

CONSERVATION STEWARDSHIP PROGRAM

Conservation crop rotation on recently converted CRP grass/legume cover

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Crop rotation on acres converted, no more than 2 years prior, from CRP grass/legume cover to annual crops. Rotation minimizes disturbance (STIR less than 10) and reduces soil erosion below soil tolerance level. 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.
- 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(s) that will produce sufficient and timely quantities of biomass or crop residue which, in conjunction with other

E328C – Conservation crop rotation on recently converted CRP grass/legume cover	July 2019	Page 1
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practices in the management system that will reduce soil erosion from water and wind to a level below the soil tolerance (T) level (average annual soil loss).

CONSERVATION STEWARDSHIP PROGRAM

- 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.





CONSERVATION STEWARDSHIP PROGRAM

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)

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.
- 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 in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- 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:** _____



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, verify the enhancement is not planned on hayland.
- 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 criteria of a management STIR value of less than 10 and average annual soil erosion from water and wind less than "T".

"T" = _____t/ac/year Soil erosion = _____t/ac/year STIR 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 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 ENHANCEMENT ACTIVITY

E328D

CONSERVATION STEWARDSHIP PROGRAM

Leave standing grain crops unharvested to benefit wildlife

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: ANIMALS

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 the plan. The crop rotation shall include a minimum of three different crops. For this purpose, 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, cover, and shelter for the targeted wildlife species using an approved habitat evaluation procedure.
- Leave a minimum ½ 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.*

E328D-Leave standing grain crops unharvested to benefit wildlife	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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:

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

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

- Prior to implementation, develop a map showing planned location(s), crop type(s), and acreage of crops to be left unharvested.
- 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.
- 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, make a 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 the unharvested plots available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- 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 food, cover, and shelter according to the approved habitat evaluation procedure.
- As needed, provide additional assistance to the participant as requested.



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, evaluate planned crop changes, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- After implementation, review the map(s) showing implemented location(s), crop type(s), and acreage of crops that were left unharvested each year, to verify implementation of the enhancement.
- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328D

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet, the following additional criteria apply in Indiana:
 - The following annual grain crops are beneficial food resources for wildlife:
 - corn
 - soybeans
 - German/pearl millet
 - oats
 - grain sorghum
 - sunflowers
 - wheat
 - Crops that provide beneficial winter cover will be used. Only those grain crops that maintain a minimum standing height of 8 inches will be used. Examples include :
 - corn
 - grain sorghum
 - wheat
 - oats
 - German/pearl millet
 - sunflowers

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet the following additional documentation requirements apply in Indiana:
 - 328 Implementation plan will include a list of crops to be grown, length of time each crop will be grown in rotation, and a map showing location of standing grain left unharvested.
 - Participant will verify each scheduled year that the proposed area was left unharvested.
 - Photo-documentation in the spring, prior to planting, must be provided to show presence of unharvested crop.

Notes and comments on this National Enhancement

None



CONSERVATION ENHANCEMENT ACTIVITY

E328E

CONSERVATION STEWARDSHIP PROGRAM

Soil health crop rotation

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

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 the plan. The crop rotation must include a minimum of four different crop types. For the purpose of this 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 (SCI). (management SCI value)



CONSERVATION STEWARDSHIP PROGRAM

- 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:

- 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 *(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 Broadleaf-WB, Cool Broadleaf-CB)



CONSERVATION STEWARDSHIP PROGRAM

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, take dated pictures with field indicated at least every 3 months to show residue or growing crops.
- During implementation, leave crop residue on the soil surface throughout the year.
- 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 planned crop rotation includes at least four different crop types.
- 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, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) value for each field using current NRCS wind



CONSERVATION STEWARDSHIP PROGRAM

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 = _____

- 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.
- 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.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY
E328E**

**CONSERVATION
STEWARDSHIP
PROGRAM**

Additional Criteria for INDIANA

1. Refer to Agronomy Technical Note #2: Conservation Crop Rotation for Soil Quality & Soil Health, for more information. It is found in the [eFOTG](#), Section 1 → Technical Notes → Agronomy Technical Notes.
2. Maximize root growth periods by planting the next crop or cover crop as soon as practical after harvest of the cash crop, intercropping, and/or utilizing perennial crops in the rotation. Keep a living root at least 90% of the available growing days. Keep cover crops growing as long as possible in the spring. Plants besides the cash crop that meet this criterion are:
 - Winter annual grains or Winter hardy cover crops.
 - i. Ensure ≥ 50% of the seeded cover crop biomass is winter hardy (seeding calculator). This does not include warm season annuals.

Ensure crop rotation has 4 different crop types: Warm Season Grass (WSG), Cool Season Grass (CSG), Warm Season Broadleaf (WSB) and Cool Season Broadleaf (CSB):	Perennial Cover 1/	Type	High Residue Crops 2/	Type	Cover Crops 3/	Type
	Alfalfa	WSB	Barley	CSG	Radish, forage, daikon	CSB
	Alsike Clover	CSB	Corn (grain)	WSG	Alsike Clover	CSB
	Birdsfoot Trefoil	WSB	Millet	WSG	Annual Ryegrass	CSG
	Kentucky Bluegrass	CSG	Milo	WSG	Barley	CSG
	Lespedeza, Korean, common	WSB	Oats	CSG	Buckwheat	WSB
	Orchardgrass	CSG	Popcorn	WSG	Canola/rape	CSB
	Perennial Ryegrass	CSG	Rye	CSG	Cowpeas	WSB
	Red Clover	WSB	Sorghum	WSG	Crabgrass (red river)	WSG
	Redtop	CSG	Sorghum-	WSG	Crimson Clover	CSB
	Smooth Brome	CSG	Sudangrass Hybrids	WSG	Field Peas/winter peas	CSB
	Tall Fescue	CSG	Sunflower	WSB	Hairy Vetch	CSB
	Timothy	CSG	Triticale	CSG	Oats	CSG
	White Clover	CSB	Wheat	CSG	Red Clover	WSB
	Canada Wildrye	CSG	Low Residue Crops 2/		Rye	CSG
	Riverbank Wildrye	CSG	Soybean	WSB	Sorghum-Sudangrass Hybrids	WSG
	Virginia Wildrye	CSG	Tomatoes	WSB	Sunflower	WSB
	Big Bluestem	WSG	Melons	WSB	Kale	CSB
	Prairie Dropseed	WSG	Corn (silage)	WSG	Triticale	CSG
	Eastern Gamagrass	WSG	Vegetables	WSB	turnips	CSB
	Indiangrass	WSG	Potatoes	WSB	Wheat	CSG
	Little Bluestem	WSG				
	Sideoats Grama	WSG	1/ Grown for two years or more.		3/ Cover to be established early enough in growing season to provide adequate root growth, biomass and/or cover.	
Switchgrass	WSG	2/ Full-season crops managed to leave 50 percent or more residue cover. Not harvested for silage or biomass.				
Native Forbs and Legumes	WSB					

Contact State Soil Health Specialist if assistance is needed with this enhancement



CONSERVATION ENHANCEMENT ACTIVITY

E328F

CONSERVATION STEWARDSHIP PROGRAM

Modifications to improve soil health and increase soil organic matter

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

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) sub factor 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.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.

E328F-Modifications to improve soil health and increase soil organic matter	November 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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:

- 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)

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

Soil Health Assessment

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



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, adjust crops, crop rotation, or field operations to improve the system after receiving the results of the soil health assessment. 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)

Adjusted Management – Field Operations

Field	Crop	Field Operation	Timing of Field Operation (month/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 planned crop rotation includes at least four different crops.
- 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 = _____



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, evaluate planned adjustments in crops, crop rotation, or field operations to verify the new system meets the enhancement criteria.
- 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 = _____

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328F

Additional Criteria for INDIANA

1. Use the Cropland In-Field Soil Health Assessment Worksheet found on the [eFOTG](#), Section III→Resource Concern List and Panning Criteria→In-Field Soil Health Assessments (SHAs) to complete a soil health assessment on the fields planned. The assessment is to evaluate soil organic matter depletion. There are 8 indicators that can be evaluated for soil organic matter depletion. At a minimum, Soil Cover, Residue Breakdown, Water Stable Aggregates and Biological Diversity will be assessed.
 - Practices recommended to be implemented within the SHA should meet the criteria that are important for addressing Soil Organic Matter Depletion.
 - If desired, other soil health assessments can be utilized in addition to the Cropland In-Field Soil Health Assessment as long as soil organic matter depletion is evaluated.
 - Additional possible soil health assessments include the Cornell Assessment of Soil Health, the Haney Soil Health Nutrient Tool or the Phospholipid Fatty Acid test.
2. Refer to Agronomy Technical Note #2: Conservation Crop Rotation for Soil Quality & Soil Health, for more information and guidance. It is found in the [eFOTG](#), Section1→ Technical Notes→Agronomy Technical Notes.
3. A primary soil health assessment will be completed in year 1 of the contract and a follow up assessment will be completed during year 3 of the contact.
4. Contact the State Soil Health Specialist for assistance in completing these assessments, if needed.



CONSERVATION ENHANCEMENT ACTIVITY

E328G

CONSERVATION STEWARDSHIP PROGRAM

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: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Crop rotation on acres converted, no more than 2 years prior, from CRP grass/legume cover to annual crops. Diverse rotation with living roots and residue cover throughout year and minimal disturbance. 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.
- 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.

E328G- Crop rotation on recently converted CRP grass/legume cover for soil organic matter improvement	August 2019	Page 1
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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. (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.

E328G- Crop rotation on recently converted CRP grass/legume cover for soil organic matter improvement	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

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)



CONSERVATION STEWARDSHIP PROGRAM

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.



CONSERVATION STEWARDSHIP PROGRAM

- 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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



E328G- Crop rotation on recently converted CRP grass/legume cover for soil organic matter improvement	August 2019	Page 6
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**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY
E328G**

**CONSERVATION
STEWARDSHIP
PROGRAM**

Additional Criteria for INDIANA

1. Refer to Agronomy Technical Note #2: Conservation Crop Rotation for Soil Quality & Soil Health, for more information. It is found in the [eFOTG](#), Section 1 → Technical Notes → Agronomy Technical Notes
2. Maximize root growth periods by planting the next crop or cover crop as soon as practical after harvest of the cash crop, intercropping, and/or utilizing perennial crops in the rotation. Keep a living root at least 90% of the available growing days. Keep cover crops growing as long as possible in the spring. Plants besides the cash crop that meet this criterion are:
 - Winter annual grains or Winter hardy cover crops.
 - i. Ensure ≥ 50% of the seeded cover crop biomass is winter hardy (seeding calculator). This does not include warm season annuals.
3. Use high residue cover crops to provide adequate residue for planting after or between low residue crops (such as soybeans, tomatoes, corn silage, melons).

Perennial Cover <u>1/</u>	Type	High Residue Crops <u>2/</u>	Type	Cover Crops <u>3/</u>	Type
Alfalfa	WSB	Barley	CSG	Radish, forage, daikon	CSB
Alsike Clover	CSB	Corn (grain)	WSG	Alsike Clover	CSB
Birdsfoot Trefoil	WSB	Millet	WSG	Annual Ryegrass	CSG
Kentucky Bluegrass	CSG	Milo	WSG	Barley	CSG
Lespedeza, Korean, common	WSB	Oats	CSG	Buckwheat	WSB
Orchardgrass	CSG	Popcorn	WSG	Canola/rape	CSB
Perennial Ryegrass	CSG	Rye	CSG	Cowpeas	WSB
Red Clover	WSB	Sorghum	WSG	Crabgrass (red river)	WSG
Redtop	CSG	Sorghum-	WSG	Crimson Clover	CSB
Smooth Brome	CSG	Sudangrass Hybrids	WSG	Field Peas/winter peas	CSB
Tall Fescue	CSG	Sunflower	WSB	Hairy Vetch	CSB
Timothy	CSG	Triticale	CSG	Oats	CSG
White Clover	CSB	Wheat	CSG	Red Clover	WSB
Canada Wildrye	CSG	Low Residue Crops <u>2/</u>		Rye	CSG
Riverbank Wildrye	CSG	Soybean	WSB	Sorghum-Sudangrass Hybrids	WSG
Virginia Wildrye	CSG	Tomatoes	WSB	Sunflower	WSB
Big Bluestem	WSG	Melons	WSB	Kale	CSB
Prairie Dropseed	WSG	Corn (silage)	WSG	Triticale	CSG
Eastern Gamagrass	WSG	Vegetables	WSB	turnips	CSB
Indiangrass	WSG	Potatoes	WSB	Wheat	CSG
Little Bluestem	WSG				
Sideoats Grama	WSG	1/ Grown for two years or more.		3/ Cover to be established early enough in growing season to provide adequate root growth, biomass and/or cover.	
Switchgrass	WSG	2/ Full-season crops managed to leave 50 percent or more residue cover. Not harvested for silage or biomass.			
Native Forbs and Legumes	WSB				

Contact State Soil Health Specialist if assistance is needed with this enhancement



CONSERVATION ENHANCEMENT ACTIVITY

E328I

CONSERVATION STEWARDSHIP PROGRAM

Forage harvest to reduce water quality impacts by utilization of excess soil nutrients

Conservation Practice 328: Conservation Crop Rotation

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish a forage crop (single species or mix) following a primary annual crop to take up excess soil nutrients. Select forage known to effectively utilize and scavenge nutrients. Forage shall be harvested for forage, but not be grazed or burned.

Criteria

- This enhancement is applicable on fields where excess soil nutrients cause or increase water quality degradation concerns. Presence of excess nutrients must be identified in recent soil tests or increased risk to water quality documented by risk assessment tool. **(Refer to state specific guidance of options to maximize nutrient uptake in local climate and cropping systems)**
- Forage 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 of forage crops known to effectively utilize and scavenge nutrients)**
- Select forage crop (single species or mix of two or more species) and planting dates which will not compete with the other crop(s) yield or harvest. ***If legumes are part of the forage mix, consider that this may add nutrients to the system.***

E328I - Forage harvest to reduce water quality impacts by utilization of excess soil nutrients	August 2019	Page 1
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- Select forage crop that is compatible with other components of the crop rotation and for its ability to efficiently scavenge and utilize excess soil nutrients, specifically nitrogen or phosphorous, whichever is identified as a potential risk to water quality. Nutrient uptake only occurs when a crop is actively growing. Therefore, it is imperative that the crops in rotation be planted as soon as possible after forage crop harvest (hay/balage/haylage/etc.) to maximize nutrient cycling and minimize offsite transport of nutrients.
- Determine method and timing of forage crop harvest to meet client objectives. Harvest the forage crop as late as practical to maximize plant biomass production and nutrient uptake.
- Ensure any herbicides used in the crop rotation are compatible with forage crop selections.
- Do not burn forage or residue.
- Do not graze forage crop.
- Reduce or maintain soil erosion from water and wind to below soil tolerance (T) level (average annual soil loss).



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.

Document excess nutrients identified in soil tests. *Soil tests should be taken as close to production crop harvest as possible.*

Field	Soil Test Date	Nutrient (Nitrogen or Phosphorus)	Soil Test Nutrient Result (ppm or lbs/ac)

Current Management Rotation

Field	Current Crops (in sequence)	Planting Date	Harvest Date

Current Field Operations for Each Crop

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



Planned Management Rotation including Forage Crop

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

Planned Field Operations for Each Crop

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

Planned Forage Crop and Seeding Rate *(forage crop may be single species or mix of two or more species)*

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

Forage Crop Establishment and Management Considerations:

- Establish forage crop mix as soon as practical prior to or after harvest of the production crop.
- During implementation, forage crop must not be grazed or burned.
- During implementation, notify NRCS of any planned changes in forage crop mix or crop rotation, or management to verify the planned system meets the enhancement criteria.



- After implementation, if changes were made, update the tables above to document the applied crop rotation for the contract period and provide to NRCS.

After implementation, complete the table below and provide to NRCS

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

NRCS will:

- As needed, provide technical assistance in selecting forage crop for the crop rotation or substitute species that would meet the criteria of the enhancement. Forage crop may consist of a single species or mix of two or more species.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, verify the enhancement is being planned on fields where excess soil nutrients cause or increase water quality degradation concerns. Presence of excess nutrients must be identified in recent soil tests or increased risk to water quality documented by risk assessment tool. **<REFER TO STATE SPECIFIC GUIDANCE>**
- Prior to implementation, use information provided from the participant to calculate the average annual soil erosion value (water and wind) for each field using NRCS erosion prediction technologies.

Benchmark Management Soil Loss = _____ tons/acre/year

Planned Management Soil Loss = _____ tons/acre/year

- During implementation, evaluate any planned changes in forage crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.



- After implementation, if there were any changes to planned rotation or management evaluate the applied crop rotation using information provided from the participant to calculate average annual erosion value to document that the applied rotation meets the enhancement criteria.

Applied Management Soil Loss = _____ tons/acre/year

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328I

Additional Criteria for INDIANA

- Presence of excess nutrients is assumed by the growing of a commodity crop that has had nitrogen (commercial fertilizer or manure) applied during the crop rotation and one of the following:
 - A soil test phosphorus level of 51 ppm or greater based on a recent soil test with in the last 4 years (on 50% or greater of the field) -or-
 - A Nitrate Leaching Index of 10 or greater for the predominant soil types in the field. This data can be found on [Web Soil Survey](#). Draw the area of interest and the information can be found on the soil data explorer tab →soil reports tab → land management→ nitrate leaching index. Click view soil report to see the results for the soils in your area of interest.

Choose annual or perennial plant species:

- Use the Midwest Cover Crop Council Decision Tool to evaluate the best species for planting. Focus on cover crops rated 3 or 4, for "Mechanical Forage Harvest Value" and "Nitrogen Scavenging" from the Midwest Cover Crop Council Decision Tool at: [Midwest Cover Crop Council Decision Tool](#) and,
- Using the Indiana General Seeding Calculator for CPS 512, Forage and Biomass Planting, choose annual or perennial forages that are capable of taking up excess nutrients, e.g., alfalfa, annual ryegrass, orchardgrass, smooth brome grass, sorghum/sudangrass, tall fescue, and clover. Crops such as cereal rye, triticale, and wheat that will be chopped for balage, ensiled, or baled for dry hay can also be used.
 - The most recent version of the Indiana General Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools.
- The use of warm season summer annual cover crops, such as the millets, sorghum-sudan grass and sudangrass can only be used to take up excess nutrients after wheat because they are not winter hardy. If summer annuals



CONSERVATION STEWARDSHIP PROGRAM

are used, forage will be harvested in the fall and a winter hardy cover crop seeded after that.

- Avoid planting legumes if nitrogen is an issue.
- Refer to the [Indiana Seeding Guidelines](#) for state specific cover crop seeding information. It is found in the eFOTG, SectionIV→Ecological Sciences Tools.

Cover Crop Species rated as a 3 or 4 for Mechanical Harvest Forage Value in the Midwest Cover Crop Council Decision Tool include:

NONLEGUME	Mechanical Harvest Forage Value Score
Barley, Winter	4
Millet (Japanese or Pearl)	4
Oats	3
Rye, Winter Cereal	3
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	4
Wheat, Winter	3

LEGUME	Mechanical Harvest Forage Value Score
Clover, Berseem	4
Clover, Crimson	4
Clover, Red	4
Pea (Field or Winter)	4

Cover Crop Species rated as a 3 or 4 for Nitrogen Scavenging in the Midwest Cover Crop Council Decision Tool include:

NONLEGUME	Nitrogen Scavenging
Barley, Winter	3
Millet (Japanese or Pearl)	4
Oats	3
Rye, Winter Cereal	4
Ryegrass, Annual	4
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	3
Wheat, Winter	3

BRASSICAS	Nitrogen Scavenging
Radish, daikon type	4
Rapeseed	3
Turnip, forage type	3



CONSERVATION ENHANCEMENT ACTIVITY

E328J

CONSERVATION STEWARDSHIP PROGRAM

Improved crop rotation to provide benefits to pollinators

Conservation Practice 328: Conservation Cropping System

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Improve the existing crop rotation by adding pollinator friendly crops into the rotation. The crop rotation shall include a minimum of three different crops in a minimum five-year crop rotation. Each year, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres contained within the agricultural operation. Use of insecticides is limited for the pollinator friendly crop.

Criteria

- Crops will be grown in a planned sequence over a five-year rotation. The crop rotation shall include a minimum of three different crops in a minimum five-year crop rotation.
- The crop rotation must include at least one pollinator friendly. For these criteria, a pollinator friendly cover crop is considered a different crop. A pollinator friendly crop is defined as a crop, planted for harvest or as a cover crop, which provides nectar for pollinators and other beneficial insects. Examples of pollinator friendly crops are canola, sunflowers, clovers, and borage. To meet the purpose and definition of a pollinator friendly crop, these “flowering” crops must be allowed to bloom prior to harvest or termination. **<REFER TO STATE SPECIFIC LIST OF POLLINATOR FRIENDLY CROPS>**

E328J - Improved crop rotation to provide benefits to pollinators	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Each year the enhancement is planned, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres contained within the agricultural operation. Plan/contract the actual acres planted to the pollinator friendly crop.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- Foliar systemic insecticides may not be applied to the pollinator friendly crop.
- Insecticides may not be applied during crop bloom period of the pollinator friendly crop.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with the current and planned crop rotation for all cropland acres on the operation. **<REFER TO STATE SPECIFIC LIST OF POLLINATOR FRIENDLY CROPS>**
- Prior to implementation, as needed, NRCS can provide technical assistance in selecting pollinator crops for the crop rotation or substitute species that would meet the criteria of the enhancement.
- Prior to implementation, provide maps for review by NRCS of the planned crop rotation, including areas which will include the pollinator friendly crops. Each year the enhancement is planned, at least 5% of the cropland acres on the operation must be planted to a pollinator friendly crop.

Current Management Rotation (complete table for each rotation)

Field	Current Crops (in sequence)	Planting Date	Harvest Date

Planned Management Rotation including Pollinator Friendly Crops (complete table for each rotation)

Field	Planned Crops (in sequence)	Planting Date	Harvest Date	Acres in rotation



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, maintain records of any insecticide applications to the pollinator friendly crop, including timing, material/product, application rate, and crop stage.

Field	Crop	Insecticide Applied	Application Date	Application Rate	Crop Stage

- During implementation, notify NRCS of any planned changes in crop rotation, insecticide applications, or management to verify the planned system meets the enhancement criteria.
- After implementation, if changes were made, complete the tables above to document the applied crop rotation for the contract period and provide to NRCS for review.
- After implementation, provide insecticide application records to NRCS for review to verify implementation meets the enhancement criteria.

NRCS will:

- As needed, provide technical assistance in selecting pollinator crops for the crop rotation or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, verify the crop rotation meets the criteria of the enhancement. The rotation must include a minimum of three different crops in a five-year crop rotation and each year the enhancement is planned the pollinator friendly crop must be planted on a minimum of 5% of cropland acres contained within the operation. *Plan/contract the actual acres planted to the pollinator friendly crop.*
- During implementation, evaluate any planned changes in crop rotation, insecticide applications, or management to verify the new system meets the enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

After implementation, if there were any changes to planned rotation or management evaluate the applied crop rotation using information provided from the participant to verify the applied rotation meets the enhancement criteria.

After implementation, review insecticide application records to verify implementation 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY E328J

CONSERVATION STEWARDSHIP PROGRAM

Additional Criteria for INDIANA

In addition to the criteria specified in the National job sheet E328J the following additional criteria apply in Indiana:

- The following crops are considered suitable for the purposes of this enhancement:

Buckwheat	Alfalfa
Flax	Clovers (crimson, red, white, alsike- Does not include sweet clover)
Cowpea	Field or Winter Peas
Sunn Hemp	Phacelia
Sunflowers	Hairy Vetch (Do not use on sandy soils)
Canola	Radish
Various fruit/vegetable crops	Turnip
Cut Flowers	

- Crops must be allowed to bloom prior to harvest or termination.
 - Where possible, wait to terminate until greater than 75% of the crop is past peak bloom
 - Terminate with minimal disturbance to minimize damage to soil nesting species. Roller crimping is a recommended option.
 - Leave as much residue as possible to protect eggs or hibernating adults.
- In addition to limiting foliar insecticide application, no insecticide seed treatments or insecticide application with burndown prior to planting the pollinator friendly cover crop will be used for the purposes of this enhancement.

Additional Documentation Requirements for INDIANA

In addition to the documentation requirements specified in the National job sheet E328J the following additional documentation requirements apply in Indiana:



CONSERVATION STEWARDSHIP PROGRAM

- 328 Implementation plan will include a list of crops to be grown, length of time each crop will be grown in rotation, and a map showing location of standing grain left unharvested.
- Participant will verify each scheduled year that the proposed area was left unharvested.
- Photo-documentation in the spring, prior to planting, must be provided to show presence of unharvested crop.

Notes and comments on this National Enhancement

None



CONSERVATION ENHANCEMENT ACTIVITY

E328K

CONSERVATION STEWARDSHIP PROGRAM

Multiple crop types to benefit wildlife

Conservation Practice 328: Conservation Cropping System

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Alternating crops in a systematic arrangement of strips across a field to provide diverse rotations of crops that provide wildlife food. At least two crops will be planted in adjacent strips a minimum of 0.5 acres in size.

Criteria

- If the field is currently divided and planted to more than one crop, further division would be required.
- The crop rotation must include a minimum of two different crops in a minimum three-year rotation. **<REFER TO STATE SPECIFIC LIST OF WILDLIFE FOOD FRIENDLY CROPS>**
- Crop strips will be a minimum of 0.5 acres in size not to exceed 40 acres. Grazing of crop residues and cover crops are permissible provided 60 percent cover remains after grazing.
- Annual crop strips will be rotated each year. If annual crops are used in conjunction with perennial crops, only that annual crop type would change the following year or growing season.

E328K – Multiple crop types to benefit wildlife	August 2019	Page 1
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- Harvested crop residue will remain standing through state identified critical wildlife periods.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with the current and planned crop rotation for all cropland acres on the operation. **<REFER TO STATE SPECIFIC LIST OF WILDLIFE FOOD FRIENDLY CROPS>**
- Prior to implementation, as needed, NRCS can provide technical assistance in selecting wildlife food crops for the crop rotation or substitute species that would meet the criteria of the enhancement.
- Prior to implementation, provide maps for review by NRCS of the planned crop rotation, including the strips which will include the wildlife food friendly crops.

Current Management Rotation (complete table for each rotation)

Field	Current Crops (in sequence)	Planting Date	Harvest Date

Planned Management Rotation including Wildlife Food Friendly Crops (complete table for each rotation)

Field	Planned Crops (in sequence)	Planting Date	Harvest Date	Acres in rotation

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



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, make photos of strips available for review by NRCS to verify implementation meets the enhancement criteria.

NRCS will:

- As needed, provide technical assistance in selecting wildlife food crops for the crop rotation or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, verify the crop rotation meets the criteria of the enhancement. The rotation must include a minimum of two different crops in a three-year crop rotation. *Plan/contract the actual acres planted to the wildlife food friendly crop.*
- During implementation, evaluate any planned changes in crops, crop rotation, or management to verify the new system meets the enhancement criteria.
- After implementation, if there were any changes to planned rotation or management evaluate the applied crop rotation using information provided from the participant to verify the applied rotation meets the enhancement criteria.
- After implementation, review photos of strips 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328K

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E328K the following additional criteria apply in Indiana:
 - This enhancement will be used to enhance an existing strip crop system.
 - The following crops are considered suitable as wildlife food friendly crops:

- Annuals

▪ Corn	▪ Soybeans
▪ German/pearl millet	▪ Grain sorghum
▪ Sunflowers	▪ Wheat
▪ Oats	▪ Peas
▪ Flax	▪ Canola
▪ Triticale	▪ Turnips
▪ Buckwheat	▪

- Perennials

▪ alfalfa	▪ clover
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- Contact the State Agronomist or State Biologist regarding other crops not listed here.

Notes and comments on this National Enhancement

- Provide NRCS with a clear description of the current cropping system, rotation and harvest times.



CONSERVATION ENHANCEMENT ACTIVITY

E328L

CONSERVATION STEWARDSHIP PROGRAM

Leaving tall crop residue for wildlife

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (annual and mixed)

RESOURCE CONCERN ADDRESSED: Animals

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Fields may be harvested but must leave crop residue standing a minimum of 14 inches. Residue will be left through winter and into spring, providing valuable winter cover and forage for wildlife spanning late summer and through the following winter.

Criteria

- The entire crop field must be harvested with residual stubble height minimum of 14 inches on average throughout the field. Only acres with this minimum stubble height are eligible for payment.
- Stubble must remain undisturbed until the State designated date in the following year to provide cover throughout winter months
- Planting and management of cover crops is not prohibited if it does not compromise the height and structure of the stubble cover
- States will supply a list of eligible crops and specify the dates that stubble must remain undisturbed for this enhancement.
- When possible, reduce or eliminate the use of herbicide treatments on weedy growth between the rows to provide additional cover and food sources for wildlife.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, develop a map showing planned location(s), crop type(s) and acreage of crops to leave tall standing stubble.
- After implementation, provide photo documentation of stubble height left standing.

NRCS will:

- As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant.
- After implementation, verify stubble height and ensure stubble is left standing after winter months.

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

E328L

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E328L the following additional criteria apply in Indiana:
 - Crops that provide beneficial winter cover will be used. Only those crops that can provide a minimum standing height of 14 inches will be used and stubble must remain undisturbed until April 15th until the subsequent season:
 - Corn
 - Grain Sorghums
 - German/pearl millet
 - Sunflowers

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E328L the following additional documentation requirements apply in Indiana:
 - 328 implementation plans will include a list of crops to be grown, length of time each crop will be grown in rotation, and a map showing location of 14 inch or higher crop residue.
 - Participant will verify each scheduled year that the proposed area was left.
 - Photo-documentation in the spring, prior to planting, must be provided to show presence of the 14 inch or higher crop residue.

Notes and comments on this National Enhancement

None



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E328M

Diversify crop rotation with canola or sunflower to provide benefits to pollinators

Conservation Practice 328: Conservation Cropping System

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Diversify existing crop rotation by adding pollinator friendly canola or sunflower crops into the rotation. The crop rotation shall include a minimum of three different crops. Each year, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres contained within the agricultural operation. Use of insecticides compliant with grower industry best management practice is allowed only during pre-bloom and bloom of canola or sunflower.

Criteria

- Crops will be grown in a planned sequence and shall include a minimum of three different crops.
- The crop rotation must include at least one year of canola or sunflower. Other pollinator friendly crops may be included. For these criteria, a pollinator friendly cover crop is considered a different crop. A pollinator friendly crop is defined as a crop, planted for harvest or as a cover crop, which provides nectar for pollinators and other beneficial insects. Examples of pollinator friendly crops are canola, sunflowers, clovers, and borage. To meet the purpose and definition of a pollinator friendly crop, these “flowering” crops must be allowed to bloom prior to harvest or termination.
<REFER TO STATE SPECIFIC LIST OF POLLINATOR FRIENDLY CROPS>

E328M - Diversify crop rotation with canola or sunflower to provide benefits to pollinators	August 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Each year the enhancement is planned, the pollinator friendly crop will be planted on a minimum of 5% of cropland acres contained within the agricultural operation. Plan/contract the actual acres planted to the pollinator friendly crop.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- Foliar systemic insecticides may not be applied to the pollinator friendly crop.
- Insecticides and fungicides applied during crop pre-bloom and bloom period of the canola or sunflower crop must be mitigated through integrated pest management and must follow industry best management practices.
 - Apply pesticides only when economic thresholds are met.
 - Apply pesticides at night or within two hours of sunset as this is when bees are least active.
 - Follow best practices for minimizing drift:
 - Use a low-drift nozzle, calibrate spray equipment, and use medium-to-coarse droplet size if possible.
 - Install cones or shrouds on field sprayers to reduce off- field movement.
 - When spraying fields, consider spot spraying or only applying pesticides to infested areas.
 - Select crop pest products with a residual activity of less than 8 hours.
 - Improve foraging areas for bees and other pollinators. Where possible, include flowering plants in non-crop areas. Avoid pesticide drift onto non-crop areas that include floral resources. Leave areas that include these resources intact whenever possible.

References

National Sunflower Association of Canada. Sunflower Production Guide. <http://www.canadasunflower.com/production/sunflower-production-guide/>
U. S. Canola Association. 2019. Best management Practices (BMPS) for Pollinator Protection in Canola Fields. https://www.uscanola.com/wp-content/uploads/2019/07/ HBHC_Canola_030119.pdf



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with the current and planned crop rotation for all cropland acres on the operation. **<REFER TO STATE SPECIFIC LIST OF POLLINATOR FRIENDLY CROPS>**
- Prior to implementation, as needed, NRCS can provide technical assistance in selecting pollinator crops for the crop rotation or substitute species that would meet the criteria of the enhancement.
- Prior to implementation, provide maps for review by NRCS of the planned crop rotation, including areas which will include the pollinator friendly crops. Each year the enhancement is planned, at least 5% of the cropland acres on the operation must be planted to a pollinator friendly crop.

Current Management Rotation (complete table for each rotation)

Field	Current Crops (in sequence)	Planting Date	Harvest Date

Planned Management Rotation including Pollinator Friendly Crops (complete table for each rotation)

Field	Planned Crops (in sequence)	Planting Date	Harvest Date	Acres in rotation



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, maintain records of any pesticide applications to canola, sunflower or pollinator friendly crops, including timing, material/product, application rate, and crop stage.

Field	Crop	Insecticide Applied	Application Date	Application Rate	Crop Stage

- During implementation, notify NRCS of any planned changes in crop rotation, pesticide applications, or management to verify the planned system meets the enhancement criteria.
- After implementation, if changes were made, complete the tables above to document the applied crop rotation for the contract period and provide to NRCS for review.
- After implementation, provide insecticide application records to NRCS for review to verify implementation meets the enhancement criteria.

NRCS will:

- As needed, provide technical assistance in selecting pollinator crops for the crop rotation or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, verify the crop rotation meets the criteria of the enhancement. *Plan/contract the actual acres planted to canola or sunflower.*
- During implementation, evaluate any planned changes in crop rotation, pesticide applications, or management to verify the new system meets the enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, if there were any changes to planned rotation or management evaluate the applied crop rotation using information provided from the participant to verify the applied rotation meets the enhancement criteria.
- After implementation, review pesticide application records to verify implementation 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

E328M

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E328M the following additional criteria apply in Indiana:
 - Leave as much residue as possible to protect eggs or hibernating adults.
 - In addition to limiting foliar insecticide applications, no insecticide seed treatments or insecticide application with burndown prior to planting the pollinator friendly crop will be used for the purposes of this enhancement.

- The crop rotation **MUST** include canola or sunflowers. However, the following may be considered suitable as additional pollinator friendly crops, if allowed to bloom prior to harvest/termination & all insecticide/pesticide restrictions listed in the enhancement and supplement are followed:

Buckwheat	Alfalfa
Flax	Clovers (crimson, red, white, alsike- Does not include sweet clover)
Cowpea	Field or Winter Peas
Sunn Hemp	Phacelia
Various fruit/vegetable crops	Hairy Vetch (Do not use on sandy soils)
Cut Flowers	

Contact the State Soil Health Specialist (Amanda [Kautz-amanda.kautz@usda.gov](mailto:amanda.kautz@usda.gov)) to evaluate additional crops that are beneficial to pollinators.

- Crops must be allowed to bloom prior to harvest or termination.
 - Where possible, wait to terminate until greater than 75% of the crop is past peak bloom.
 - Terminate with minimal disturbance to minimize damage to soil nesting species. Roller crimping is a recommended option.
 - Leave as much residue as possible to protect eggs or hibernating adults.



CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E328M the following additional documentation requirements apply in Indiana:
 - 328 implementation plans will include a list of crops to be grown, length of time each crop will be grown in rotation, and a map showing location of canola or sunflowers.

Notes and comments on this National Enhancement

None



CONSERVATION ENHANCEMENT ACTIVITY

E328N

Intercropping to improve soil health

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Soil Quality Limitations

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

This enhancement involves the use of intercropping principles (i.e., growing two or more crops in close proximity to each other during part or all of their life cycles) to promote interactions that improve soil health, plant health, reduce inputs via increased biodiversity and contribute to pest management. Incorporating intercropping principles into an agricultural operation increases diversity and interaction between plants, arthropods, mammals, birds and microorganisms resulting in a more stable crop-ecosystem and a more efficient use of space, water, sunlight and nutrients. Furthermore, soil health is benefited by increasing ground coverage with living vegetation which reduces erosion and by increasing the quantity and diversity of root exudates which enhances soil fauna. This collaborative type of crop management mimics nature and is subject to fewer pest outbreaks, improved nutrient cycling and crop nutrient uptake, and increased water infiltration and moisture retention. **This enhancement cannot be used for annual hay or silage crops. It is for grain/seed/vegetable production only.**

Criteria

One or more of the following intercropping systems shall be used. Systems can be mixed during the contract period allowing for within year diversity on the same field. Producers should consult with the USDA-Risk Management Agency (RMA) to clarify and understand how the use of any of the criteria options below might impact insurability of any cash crop grown using these methods.



- Plant two or more crops simultaneously in the same field. For example, planting chickpeas and flax together either in alternate rows or mixed within rows. Another example could be planting vegetables that perform well together, e.g. the “three sisters” intercropping system of corn, beans and squash.
- Relay intercropping – grow two or more crops on the same field with the planting of the second crop before the first crop is harvested. This cropping strategy enables production of a second crop in areas where time for seeding the second crop is considered inadequate for double cropping. For example, seeding soybeans into wheat that is still growing.
- Strip intercropping – grow crops in alternate strips wide enough to permit separate crop production machinery, but close enough for crops to interact (e.g., planting alternating strips of corn and soybeans 6 rows each or alternating strips of corn and Sudan grass). Generally, the maximum width of individual strips for effective interaction of crop pests and their natural enemies is about 30 ft. Note: this criterion is not the same as NRCS Conservation Practice Stripcropping Code 585



Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with the current and planned crop rotation, including intercropping system used, for all cropland acres on the operation.
- Prior to implementation, provide maps for review by NRCS of the planned crop rotation.
- 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, take dated pictures with field indicated at least every 3 months to show growing intercrops.
- After implementation, provide for review pictures showing growing intercrops throughout the year.

Current Management Rotation (complete table for each rotation)

Field	Current Crops (in sequence)	Planting Date	Harvest Date

Planned Management Rotation With Intercropping (complete table for each rotation)

Field	Planned Crops (in sequence)	Planting Date	Harvest Date



NRCS will:

- As needed, provide technical assistance in selecting intercropping systems for the crop rotation that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, verify the crop rotation meets the criteria of the enhancement. ***Plan/contract the actual acres planted to the intercrops.***
- During implementation, evaluate any planned changes in crops, crop rotation, or management to verify the new system meets the enhancement criteria.
- After implementation, if there were any changes to planned rotation or management evaluate the applied crop rotation using information provided from the participant to verify the applied rotation meets the enhancement criteria.
- After implementation, review photos of the intercropping system.

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

E3280

CONSERVATION STEWARDSHIP PROGRAM

Perennial grain crop conservation rotation

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Soil; Plants

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Establish a perennial grain crop as part of a rotation with two other crops. 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 rotation must include one perennial grain crop with two other crops in rotation. The perennial grain crop will be grown for at least two years after planting.
- 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 and irrigation water availability. Plan for rotation substitutions for planting delays or crop failures.

CONSERVATION STEWARDSHIP PROGRAM





Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- Prior to implementation, provide NRCS with the planned crop rotation including the perennial grain 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)

- During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- 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 in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- Prior to implementation, verify that the crop rotation includes a perennial grain crop in a minimum three-year crop rotation.
- Prior to implementation, verify the perennial grain crop.



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, use the 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 the 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 ENHANCEMENT ACTIVITY

E328P

CONSERVATION STEWARDSHIP PROGRAM

Low Nitrogen Requirement Annual Crop Rotation

CONSERVATION PRACTICE: 328 - Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil, Water

ENHANCEMENT LIFE SPAN: 1 years

Enhancement Description

Design a planned annual crop rotation which requires less average annual nitrogen fertilizer than the current (benchmark) crop rotation. This is accomplished by replacing high N-requirement annual crops with low N-requirement annual crops. Examples include replacing high N-requirement small grain crops such as spring wheat, with low N-requirement small grain crops (oats or malt barley) or annual legumes. The crop rotation will reduce fertilizer N application, decrease the potential for nitrates to leach to groundwater, maintain soil organic matter, and slow the effects of soil acidification.

Criteria

- Both the benchmark and planned rotation will be grown in a planned sequence and must have a minimum of two different crops. A cover crop is considered a different crop.
- The planned crop rotation must produce a Soil Conditioning Index (SCI) value of greater than or equal to zero, as calculated by the current NRCS wind and water erosion prediction technologies.
- Sufficient residues must be left on the soil surface to prevent potential erosion issues. Use the current NRCS wind and water erosion prediction technologies to calculate residue requirements.



CONSERVATION STEWARDSHIP PROGRAM

- Use Land Grant University guidance and average county crop yields for the past 5 years to determine the N-requirement of each crop in both the benchmark and planned rotations.
- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress 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 and irrigation water availability. Plan for rotation substitutions, for planting delays, or crop failures.
- Perennials are allowed in both the benchmark and planned rotation; however, they cannot be included in the average annual N-requirement calculation to meet the enhancement criteria.
- Fallow periods are allowed in both the benchmark and planned rotation; however, they cannot be included in the average annual N-requirement calculation to meet the enhancement criteria.

Documentation and Implementation Requirements

Participant will:

- Provide NRCS with the current (benchmark) and a suggested planned annual crop rotation.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.

NRCS will:

- As needed, provide technical assistance in selecting crop rotations or substitute crops that would meet the criteria of the enhancement.
- Calculate the 5-year average county yield for each crop in both the benchmark and planned rotation. If this information is not available, consult with LGU personnel to make an informed decision.



CONSERVATION STEWARDSHIP PROGRAM

- Calculate the average annual LGU nitrogen requirement for the benchmark and planned rotations based on the crops and their 5-year county yield averages. Fill in the tables below with this information.
- Verify that the average annual nitrogen requirement of the planned rotation is less than the average annual nitrogen requirement of the benchmark rotation.
- Prior to implementation, verify that both the benchmark and planned crop rotation include at least two different crops.
- Prior to implementation, use the information provided from the participant to calculate the average annual erosion and Soil Conditioning Index (SCI) using current NRCS wind and water erosion prediction technologies. The planned crop rotation must produce an SCI value of greater than or equal to 0, and the average annual erosion must be at or below T.

Average Annual Erosion (ton/ac/yr) = _____ SCI value = _____

Benchmark Rotation and N Requirement

Field: _____ Acres: _____

Current Annual Crops (in sequence) (Do not include fallow or perennial crops)	5-year County Average Yield	LGU Nitrogen Requirement (lb/ac)
Total Rotation N Requirement		
AVERAGE ANNUAL N REQUIREMENT (Total/Rotation Years)		



CONSERVATION STEWARDSHIP PROGRAM

Planned Rotation and N Requirement

Field: _____ Acres: _____

Planned Annual Crops (in sequence) (Do not include fallow or perennial crops)	5-year County Average Yield	LGU Nitrogen Requirement (lb/ac)
Total Rotation N Requirement		
AVERAGE ANNUAL N REQUIREMENT (Total/Rotation Years)		

- 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 the information provided from the participant to re-calculate the average annual N requirement, average annual erosion, and SCI values to document that the applied rotation met the enhancement criteria.

Re-calculated Average Annual Erosion (ton/ac/yr) = _____ 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 ENHANCEMENT ACTIVITY

E329A

CONSERVATION STEWARDSHIP PROGRAM

No till to reduce soil erosion

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish no till system to reduce sheet and rill and wind erosion soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water and wind 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 and wind erosion for the crop rotation (average annual soil loss).
- 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



CONSERVATION STEWARDSHIP PROGRAM

periods). Each crop must have a Soil Tillage Intensity Rating value of no greater than 10.

- Use the current approved water and 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 must account for the effects of other practices in the management system.



CONSERVATION STEWARDSHIP PROGRAM

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)

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, 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 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.
- 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



CONSERVATION STEWARDSHIP PROGRAM

below the soil tolerance (T) level for water and wind 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 ENHANCEMENT ACTIVITY

E329B

CONSERVATION STEWARDSHIP PROGRAM

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: Air

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) 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

E329B - No till to reduce tillage induced particulate matter	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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.



Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

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)

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, 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.
- 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.
- 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, verify that the field to be established 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 = _____
- 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 ENHANCEMENT ACTIVITY

E329C

CONSERVATION STEWARDSHIP PROGRAM

No till to increase plant-available moisture

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

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

E329C - No till to increase plant-available moisture	August 2019	Page 1
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- Maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

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)

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, 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 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.
- During implementation, maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.
- 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.



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 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 = _____
- 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 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 ENHANCEMENT ACTIVITY

E329D

CONSERVATION STEWARDSHIP PROGRAM

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: Soil

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 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.

E329D - No till system to increase soil health and soil organic matter content	August 2019	Page 1
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- 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.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

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)

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, no residue will be burned, grazed, or harvested.
- 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 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.
- 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.



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 (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.
STIR values for each crop = _____
- 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 = _____**
- 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 = _____
- 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

E329D - No till system to increase soil health and soil organic matter content	August 2019	Page 4
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CONSERVATION ENHANCEMENT ACTIVITY

E329E

CONSERVATION STEWARDSHIP PROGRAM

No till to reduce energy

Conservation Practice 329: Residue & Tillage Management, No Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Energy

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.
- 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.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- 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)

Field	Crop	Planned 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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 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.
- During implementation, reduce the total energy consumption associated with field operations by at least 25% compared to the current benchmark tillage system.
- 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 the 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%.

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 crop(s), 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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





CONSERVATION ENHANCEMENT ACTIVITY

E329F

CONSERVATION STEWARDSHIP PROGRAM

No-till into green cover crops to improve soil organic matter quantity and quality

Conservation Practice 329: Residue and Tillage Management, No-Till

APPLICABLE LAND USE: Crop (Annual and Mixed), Crop (Perennial)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Prepare fields using appropriate site preparation to establish a no till, planting green system to increase soil health and soil organic matter content. Planting green methods will be used to maximize the benefits of the cover crop by leaving the cover crop in place for an extended growing period. The current NRCS wind and water erosion prediction technologies must be used to document STIR and SCI calculations. The health of the soil will be monitored using the In-Field Soil Health Assessment and through a laboratory analysis.

Criteria

- All residues must be uniformly distributed over the entire field.
- Residue must not be burned, grazed, or harvested.
- Each crop in the crop rotation shall have a Soil Tillage Intensity Rating (STIR) of no greater than 20. 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 crop rotation must achieve a soil conditioning index (SCI) of zero or higher. If there is a planned change in crop rotation, the planned crop rotation must have an SCI greater than the current crop rotation.



CONSERVATION STEWARDSHIP PROGRAM

- 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.
- Use the Cropland In-Field Soil Health Assessment Guide to record the benchmark conditions prior to adopting no-till green planting in Year 1. During Year 3, a follow up assessment for soil health with laboratory testing will be completed. Soil samples will be collected and tested for soil organic carbon content measured by dry combustion and carbon mineralization potential measure by 24 hour carbon dioxide burst OR permanganate-oxidizable carbon laboratory methods.
- The current version of the NRCS Cover Crop Termination Guidelines must be followed to ensure the next crop is eligible for crop insurance. Risk Management Agency’s Good Farming Practices Handbook indicates that following NRCS 340 Cover Crop and the Termination Guidelines are acceptable practices. In some zones, an agreement with the insurer may be needed, check with local crop insurance provider.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Provide NRCS with the planned crop rotation and tillage operation(s) used for each crop prior to implementation using the following tables. If the implemented rotation differs from the planned rotation, provide NRCS with updated tables.

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

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

- Notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- Collect soil samples in the area of field where this enhancement action has been applied. Follow the soil sample collection protocol for soil health assessments as outlined in Tech Note 450-3. Submit for laboratory analysis.



CONSERVATION STEWARDSHIP PROGRAM

- Provide laboratory test results and sampling locations to NRCS for interpretation by e-mailing the data to SoilHealthTest@usda.gov
- Will not burn, graze, or harvest residues.
- Uniformly distribute residues over the entire field. Removing residue from the row area prior to or as part of the planting operation is acceptable.
- Not use any full-width tillage 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.
- After implementation, provide NRCS with representative pictures of the implemented enhancement as well as the following information:

Crop	Height of Cover Crop When Planting (inches)	Mechanical Termination Methods Used	Chemical Methods Used	Days Between Cover Crop Termination and Planting of Cash Crop



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Provide technical assistance to meet the criteria of the enhancement, as needed.
- Provide participant with current NRCS Cover Crop Termination Guidelines.
- Prior to implementation, evaluate the field condition using the Cropland In-Field Soil Health Assessment.
- Prior to implementation, use information provided by 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.

Crop	STIR Value Planned	STIR Value Implemented (if different than planned)

- 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. If the crop rotation is changing, the planned rotation must have a higher SCI than the original crop rotation. If the implemented rotation differs from the planned rotation, note the values below.

Planned SCI value = _____ and Planned OM Subfactor Value = _____

Implemented SCI value = _____ and Implemented 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



CONSERVATION STEWARDSHIP PROGRAM

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 = _____

- 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.
- Review soil health assessment lab test results and SHAPE interpretation with the participant.

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

E334A

CONSERVATION STEWARDSHIP PROGRAM

Controlled traffic farming to reduce compaction

Conservation Practice 334: Controlled Traffic Farming

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

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 5 Year

Enhancement Description

Establish a controlled traffic system where no more than 25% of the surface is tracked with heavy axel loads to minimize soil compaction. For row crops (e.g. corn in 30-inch rows) no tire should run on a row except for flotation tires on combines and/or fertilizer and lime spreading trucks. If wide flotation tires are used, they must be big enough that the inflation pressure will be below 18 psi to minimize compaction on trafficked rows.

Criteria

- Ensure that controlled traffic lanes are designed and used in a manner that avoids concentrated flow that may result in gully erosion.
- Limit wheel/track traffic to no more than 25 percent of the soil surface. The same tracks must be used for all high load traffic continually. High wheel load traffic is defined here as any tire or track that bears a load higher than 6,000 pounds at 30 psi or 6 tons per axle.
- For row crops (e.g. corn in 30-inch rows) no tire should run on a row except for flotation tires on combines and/or fertilizer and lime spreading trucks.
- If wide flotation tires are used, they must be big enough that the inflation pressure will be below 18 psi to minimize compaction on trafficked rows.

E334A - Controlled traffic farming to reduce compaction	July 2019	Page 1
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- Use a Geographic Positioning System (GPS) to guide field operations and wheeled/track traffic when the designated traffic lanes are obscured.
- Once the tram lines or traffic pattern is established, do not till deeper than 4 inches.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, develop a plan to limit wheel/track traffic to no more than 25 percent of the soil surface.
- Prior to implementation, complete the following table to provide the current and any planned changes to crop row width.

Crops in Rotation (shown in sequence)	Current Crop Row Width	Planned Crop Row Width

- Prior to implementation, complete the following table to provide the current equipment width and spacing used for the above crop rotation.

Equipment Used in Crop Rotation	Width of Equipment (feet)	Tire/Track Spacing (on-center Inches)

- Prior to implementation, complete the following table to provide any planned changes to equipment width and spacing used for the above crop rotation.

Equipment used in Crop Rotation	Width of equipment (feet)	Tire/Track spacing (on-center Inches)



CONSERVATION STEWARDSHIP PROGRAM

Equipment used in Crop Rotation	Width of equipment (feet)	Tire/Track spacing (on-center Inches)

- During implementation, the same tracks must be used for all high load traffic continually. High wheel load traffic is any tire or track that bears a load higher than 6,000 pounds at 30 psi or 6 tons per axle.
- During implementation, use a Geographic Positioning System (GPS) to guide field operations and wheeled/track traffic when the designated traffic lanes are obscured.
- During implementation, once the tram lines or traffic pattern is established, do not till deeper than 4 inches.
- During implementation, if ruts develop, use tillage or other specialized equipment to remove ruts and reestablish controlled traffic lanes.

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, verify the developed plan will limit wheel/track traffic to no more than 25 percent of the soil surface. **Percent wheel/track traffic = _____**
- Prior to implementation, ensure that controlled traffic lanes are planned and implemented in a manner that avoids concentrated flow that may result in gully erosion.
- After implementation, verify the plan was implemented to limit wheel/track traffic to no more than 25 percent of the soil surface. **Percent wheel/track traffic = _____**

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 _____

E334A - Controlled traffic farming to reduce compaction	July 2019	Page 4
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United States Department of Agriculture

Total Amount Applied _____
Fiscal Year Completed _____

CONSERVATION STEWARDSHIP PROGRAM

NRCs Technical Adequacy Signature

Date





CONSERVATION ENHANCEMENT ACTIVITY

E338B

**CONSERVATION
STEWARDSHIP
PROGRAM**

Short-interval burns to promote a healthy herbaceous plant community

Conservation Practice 338: Prescribed Burning

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description:

The controlled use of fire is applied in a forest to restore fire-adapted plants and forage while improving wildlife habitat, wildlife food supply, and reducing the risk of damage from intense, severe wildfires. The ideal interval between prescribed burns is not often achieved. To improve the effectiveness of prescribed burning, the frequency of prescribed burning is increased appropriately, for a specified time period, to help restore ecological conditions in forests and woodlands. Short return interval prescribed burning is used to regenerate desirable tree species, improve the condition of fire-adapted plants and native herbaceous vegetation, improve wildlife food supply and forage quantity and quality, 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.
- Update the Prescribed Burning Plan (Conservation Activity 160), or other Prescribed Burn prescription, in consultation with NRCS personnel to address restoration needs for fire-adapted vegetative communities and forages on the property.

E338B - Short-interval burns to promote a healthy herbaceous plant community	April 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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).
- Apply to sites where prescribed burning has previously been implemented at longer intervals than recommended to maintain the desired plant community, and where burn frequency must be increased to achieve the objectives listed in the enhancement description.
- The prescribed burning frequency will be increased (i.e., the burn interval will be reduced) from the previous regimen to an interval appropriate for the target plant community.
- Assess the existing fuel load using appropriate tools and methods for the geographic area.
- If invasive plants are present, utilize methods and timing that will prevent or control their spread.
- A written burn 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 prescribed burn.
 - List of appropriate authorities, agencies, departments, individuals, and facilities to be contacted and necessary signatures of approval.
 - Checklist for a post-burn evaluation.

Burning criteria

- Follow all components of the burn plan.
- 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.



Grazing criteria

- If grazing is used in combination with prescribed burning to manage understory vegetation, a grazing plan must be in place and be used to guide the frequency and duration of grazing periods.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, identify sites where at least one application of prescribed burning was implemented at longer burn intervals (i.e., insufficient frequency) than recommended for the target plant community by an existing prescribed burn plan or other habitat management plan. (NRCS will provide technical assistance, as needed)
- Prior to implementation, identify and document those sites in need of restoration of fire-adapted vegetative communities and forages where increased burn frequency will achieve the objectives listed in the enhancement description. (NRCS will provide technical assistance, as needed)
 - If grazing is used in combination with prescribed burning to manage understory vegetation, develop or update a grazing plan prior to implementation to guide the frequency and duration of grazing periods in accordance with the objectives of the enhancement description. Provide a copy to NRCS.
- 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. Use complimentary practices as needed, such as NRCS Conservation Practice Standards Fuel Break (Code 383), Firebreak (Code 394) and Woody Residue Treatment (Code 384) to achieve appropriate conditions. (NRCS will provide technical assistance, as needed.)
- 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.
- Prior to implementation of a prescribed burn, acquire all necessary approvals and permits (local, state, federal as applicable).
- During implementation, and prior to ignition of each prescribed burn, acquire a current fire weather forecast and ensure all weather conditions are within those prescribed in the written burn plan. If conditions are not within prescription, postpone burn.
- 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.
- During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)



CONSERVATION STEWARDSHIP PROGRAM

- ❑ After implementation of each prescribed burn, conduct a post-burn evaluation as required within the burn plan and provide to NRCS.

NRCS will:

- ❑ Prior to Implementation, as needed, provide technical assistance in determining sites for enhancement implementation that meet specified criteria.
- ❑ Prior to implementation, as needed, provide explanation and technical assistance in interpreting the following NRCS Conservation Practice Standards as they relate to implementing this enhancement:
 - Prescribed Burning (Code 338)
 - Fuel Break (Code 383)
 - Firebreak (Code 394)
 - Woody Residue Treatment (Code 384)
 - Additional Conservation Practice Standards for erosion control, as needed for the site.
- ❑ Prior to implementation, review and certify the prescribed burn plan meets the enhancement criteria and any additional state NRCS requirements.
- ❑ (If livestock are used) Prior to implementation, review the prescribed grazing plan to ensure objectives of the enhancement will be met when used in combination with prescribed burning.
- ❑ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ❑ After implementation of each prescribed burn, review the post burn evaluation provided by the participant. Discuss any issues that may have occurred, and provide assistance as needed in adjusting plans and procedures to improve future prescribed burns.



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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E338B

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E338B the following additional criteria apply in Indiana:

- Livestock must be excluded from all forested acres enrolled for this enhancement. Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on excluding livestock.
- Temporary fire breaks shall be created/maintained around any known Indiana bat primary maternal roost trees that fall within a proposed burn area prior to the burn.
- Woody Residue Treatment Standard (Code 384) is not adopted by Indiana NRCS and is not a requirement for treating slash and debris for this enhancement. However, assure that slash and debris does not pose an unacceptable fire, safety, environmental, or pest hazard.
- Fuel Break (Code 383) is not adopted by Indiana NRCS. Use Firebreak (Code 394) as a complementary practice, as needed.
- Prescribed burns shall not be conducted from 15 April through 15 September in burn areas containing potential bat roost trees/snags >5" dbh.
- Management activities that disturb cover or ground surface (such as Prescribed Burning) will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species.
- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Notes and comments on this National Enhancement:

Formerly E338136Z, E338137Z2, and E338140Z



CONSERVATION ENHANCEMENT ACTIVITY

E340A

CONSERVATION STEWARDSHIP PROGRAM

Cover crop to reduce soil erosion

Conservation Practice 340: Cover Crop

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

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Cover crop added to current crop rotation to reduce soil erosion from water and wind 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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:

- 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)

Planned Management Rotation Including Cover Crop

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



CONSERVATION STEWARDSHIP PROGRAM

Planned Field Operations for each crop

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

Cover Crop Mix and Seeding Rate

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

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	

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- During implementation, cover crops must not be burned, grazed or harvested.
- During implementation, the crop following the cover crop must be no till seeded.



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, use information provided from the participant to calculate the management sheet and rill erosion from water and wind erosion value for each field using current NRCS water erosion prediction technologies.

Benchmark Management Soil Loss = _____ tons/acre/year

Planned Management Soil Loss = _____ tons/acre/year

- During implementation, evaluate any planned changes to cover crop mix, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- After implementation, evaluate the applied cover crop in the crop rotation or management using information provided from the participant, if any variation to planned evaluation, then calculate erosion values to document that the applied rotation met the enhancement criteria.

Applied Management Soil Loss = _____ tons/acre/year



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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340A

Additional Criteria for INDIANA

Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)

Choose plant species (Cover Crops) from the following:

1. Use the Midwest Cover Crop Council Decision Tool to evaluate the best species for planting. Focus on cover crops rated 3 or 4, for "Erosion Fighter" from the Midwest Cover Crop Council Decision Tool at: [Midwest Cover Crop Council Decision Tool](#) and,
2. Using the Indiana Cover Crop Seeding Calculator, create a mix, ensuring that the mix has 50% or greater of plant canopy(biomass) of species rated 3 or 4 for erosion fighter.
3. The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools
4. Refer to the [Indiana Seeding Tool Guidelines](#) for state specific cover crop seeding information. It is found in the eFOTG, Section IV→Ecological Sciences Tools
5. If the plan is to use cover crop species that winter kill, early establishment is essential to ensure the dead biomass is will able to provide some erosion control benefit in the spring.

Cover Crop Species rated as a 3 or 4 for Erosion Fighting in the Midwest Cover Crop Council Decision Tool include:

LEGUME	Erosion Fighter Score
Clover, Berseem	3
Clover, Crimson	3
Clover, Red	3

NONLEGUME	Erosion Fighter Score
Barley, Winter	4
Millet, Japanese	4
Millet, Pearl	4
Oats	4
Rye, Winter Cereal	4
Ryegrass, Annual	4
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	4
Wheat, Winter	4



CONSERVATION ENHANCEMENT ACTIVITY

E340B

CONSERVATION STEWARDSHIP PROGRAM

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: Soil

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.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.

E340B - Intensive cover cropping to increase soil health and soil organic matter content	July 2019	Page 1
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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 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.)**
- 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 result in a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation.

E340B - Intensive cover cropping to increase soil health and soil organic matter content	July 2019	Page 2
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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)

Planned Management Rotation Including Cover Crop

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



CONSERVATION STEWARDSHIP PROGRAM

Planned Field Operations for each crop

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

Cover Crop Mix and Seeding Rate

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

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	

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, cover crops must not be burned or harvested.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, verify the cover crop mix has a minimum of 3 species.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, use the 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. 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 trending OM subfactor over the life of the rotation.

Benchmark Management SCI = _____, Benchmark Management OM sub factor = _____

Planned Management SCI = _____, Planned Management OM sub factor = _____

- 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.
- 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.

Applied Management SCI = _____, Applied Management OM sub factor = _____

E340B - Intensive cover cropping to increase soil health and soil organic matter content	July 2019	Page 5
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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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name: _____ Contract Number: _____

Total Acres Applied: _____ Fiscal Year Completed: _____

NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY E340B

CONSERVATION STEWARDSHIP PROGRAM

Additional Criteria for INDIANA

Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)

Choose plant species (Cover Crops) from the following:

1. Use the Midwest Cover Crop Council Decision Tool to evaluate the best species for planting. Focus on cover crops rated 3 or 4, for "Soil Building" from the Midwest Cover Crop Council Decision Tool at: [Midwest Cover Crop Council Decision Tool](#) and,
2. Using the Indiana Cover Crop Seeding Calculator, create a mix with a **minimum of 3 species**, ensuring that the mix has 50% or greater of plant canopy(biomass) of species rated 3 or 4 for soil building.
3. The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools
4. Refer to the Indiana Seeding Tool Guidelines for state specific cover crop seeding information. It is found in the eFOTG, Section IV→Ecological Sciences Tools
5. Cover crop species that winter kill must be seeded with an over-winter species to ensure cover in the spring.

Cover Crop Species rated as a 3 or 4 for Soil Building in the Midwest Cover Crop Council Decision Tool include:

NONLEGUME	Soil Building Score
Barley, Winter	3
Buckwheat	3
Millet, Japanese	3
Millet, Pearl	3
Oats	3
Rye, Winter Cereal	4
Ryegrass, Annual	4
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	3
Wheat, Winter	3

BRASSICAS	Soil Building Score
Radish, daikon type	3
LEGUMES	Soil Building Score
Clover, Berseem	3
Clover, Crimson	3
Clover, Red	3
Vetch, Hairy	3



CONSERVATION ENHANCEMENT ACTIVITY

E340C

CONSERVATION STEWARDSHIP PROGRAM

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), Pasture

RESOURCE CONCERN: Soil

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**).
- 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.

E340C - Use of multi-species cover crop to improve soil health and increase soil organic matter	September 2023	Page 1
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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 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.
- 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.

- A 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

E340C - Use of multi-species cover crop to improve soil health and increase soil organic matter	September 2023	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

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 that are 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.

E340C - Use of multi-species cover crop to improve soil health and increase soil organic matter	September 2023	Page 3
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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)

Planned Management Rotation Including Cover Crop

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



CONSERVATION STEWARDSHIP PROGRAM

Planned Field Operations for each crop

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

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 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	
Grazing Management, as needed	



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, if livestock are included in the system consider cover crop species tolerant to grazing.
- 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% of available cover crop forage.
- During implementation, cover crops must not be burned or harvested.
- During implementation, if livestock are included in the system maintain records of forage utilization.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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.
- 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.

NRCS will:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- 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

E340C - Use of multi-species cover crop to improve soil health and increase soil organic matter	September 2023	Page 6
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CONSERVATION STEWARDSHIP PROGRAM

value must be 0 or greater and have a positive trend in OM sub factor over the life of the rotation.

Benchmark Management SCI = _____, Benchmark Management OM sub factor = _____

Planned Management SCI = _____, Planned Management OM sub factor = _____

- Prior to implementation, if livestock are included in the system verify a grazing plan has been developed.
- 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.
- 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.

Applied Management SCI = _____, Applied Management OM sub factor = _____

- 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.

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

E340C - Use of multi-species cover crop to improve soil health and increase soil organic matter	September 2023	Page 7
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340C

Additional Criteria for INDIANA

Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)

Mix will include a **minimum of 4 different species** (2 of the cover crops species will be from the crop groups missing from the current crop rotation). Here is a list of common Indiana annual crops and cover crops sorted by crop types:

Cool season grasses	Warm season grasses	Cool season broadleaves	Warm season broadleaves
Barely	Corn	Clover, Alsike	Buckwheat
Oats	Millet, Japanese	Clover, Berseem	Cowpeas
Rye, Winter Cereal	Millet, Pearl	Clover, Crimson	Clover, Red
Ryegrass, Annual	Milo	Kale	Melons
Triticale	Popcorn	Peas, Field and Winter	Potatoes
Wheat, Winter	Sorghum-sudangrass	Radish, forage and daikon	Sunflower
	Sudangrass	Rapeseed	Soybean
		Turnips, forage	Tomatoes
		Vetch, hairy	Vegetables

This information can also be found in Agronomy Tech Note #2-Conservation Crop Rotations for Soil Quality and Soil Health located in the [eFOTG](#), Section I→Technical Notes→Agronomy Technical Notes

Choose plant species (Cover Crops) from the following:

1. Use the Midwest Cover Crop Council Decision Tool to evaluate the best species for planting. Focus on cover crop species rated 3 or 4, for "Soil Builder" from the Midwest Cover Crop Council Decision Tool at: [Midwest Cover Crop Council Decision Tool](#) and,
2. Using the Indiana Cover Crop Seeding Calculator, create a mix with a **minimum of 4 species**, ensuring that the mix has 50% or greater of plant canopy(biomass) of species rated 3 or 4 for soil building.
3. The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools



CONSERVATION STEWARDSHIP PROGRAM

- 4. Refer to the Indiana Seeding Tool Guidelines for state specific cover crop seeding information. It is found in the eFOTG, Section IV/Old Section IV → Ecological Sciences Tools
- 5. Contact Grazing Specialist or Soil Health Specialist for guidance on developing a grazing plan.

Cover Crop Species rated as a 3 or 4 for Soil Builder in the Midwest Cover Crop Council Decision Tool include:

NONLEGUME	Soil Building Score
Barley, Winter	3
Buckwheat	3
Millet, Japanese	3
Millet, Pearl	3
Oats	3
Rye, Winter Cereal	4
Ryegrass, Annual	4
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	3
Wheat, Winter	3
BRASSICAS	Soil Building Score
Radish, daikon type	3
LEGUMES	Soil Building Score
Clover, Berseem	3
Clover, Crimson	3
Clover, Red	3
Vetch, Hairy	3



Contact State Soil Health Specialist if assistance is needed with this enhancement



CONSERVATION ENHANCEMENT ACTIVITY

E340D

CONSERVATION STEWARDSHIP PROGRAM

Intensive orchard/vineyard floor cover cropping to increase soil health

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Perennial)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Implement orchard or vineyard floor cover crops. Cover crop shall not be harvested, grazed, or burned. Must achieve a soil conditioning index of zero or higher and produce a positive trend in the Organic Matter subfactor over the life of the rotation.

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.
- 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

E340D - Intensive orchard/vineyard floor cover cropping to increase soil health	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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 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 based on 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)

Planned Management Rotation Including Cover Crop

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



CONSERVATION STEWARDSHIP PROGRAM

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 (%)

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	

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, determine develop map showing the area(s) to be planted to cover crop. Cover crop must cover at least 60% of the field area each year.
- During implementation, cover crops must not be burned or harvested.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- 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 sub factor 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.

Benchmark Management SCI = _____ Benchmark Management OM sub factor = _____

Planned Management SCI = _____ Planned Management OM sub factor = _____

- 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.
- Prior to implementation, verify cover crop will cover at least 60% 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.
- 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.

Applied Management SCI = _____, Applied Management OM sub factor = _____

E340D - Intensive orchard/vineyard floor cover cropping to increase soil health	July 2019	Page 5
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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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



E340D - Intensive orchard/vineyard floor cover cropping to increase soil health	July 2019	Page 6
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY E340D

CONSERVATION STEWARDSHIP PROGRAM

Additional Criteria for INDIANA

Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)

Choose plant species (Cover Crops) and applicable planting dates from the following:

1. Use the Midwest Cover Crop Council Decision Tool to evaluate the best species for planting. Focus on cover crop species rated 3 or 4, for "Soil Builder" from the Midwest Cover Crop Council Decision Tool at: [Midwest Cover Crop Council Decision Tool](#) or
2. Use from the Midwest Cover Crops Council Decision Tool – Vegetables (Michigan) to evaluate the best species for planting. Focus on species rated 3 or 4 for "Soil Builder" at: [MCCC Decision Tool for Vegetables](#) and,
3. Using the Indiana Cover Crop Seeding Calculator, create a mix with a **minimum of 2** species, ensuring that the mix has 50% or greater of plant canopy(biomass) of species rated 3 or 4 for soil building..
4. The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools
5. Refer to the Indiana Seeding Tool Guidelines for state specific cover crop seeding information. It is found in the eFOTG, SectionIV→Ecological Sciences Tools

Cover Crop Species rated as a 3 or 4 for Soil Builder in the Midwest Cover Crop Council Decision Tool include:

BRASSICAS	Soil Building Score
Radish, daikon type	3
LEGUMES	Soil Building Score
Clover, Berseem	3
Clover, Crimson	3
Clover, Red	3
Vetch, Hairy	3

NONLEGUME	Soil Building Score
Barley, Winter	3
Buckwheat	3
Millet, Japanese	3
Millet, Pearl	3
Oats	3
Rye, Winter Cereal	4
Ryegrass, Annual	4
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	3
Wheat, Winter	3



CONSERVATION ENHANCEMENT ACTIVITY

E340E

CONSERVATION STEWARDSHIP PROGRAM

Use of soil health assessment to assist with development of cover crop mix to improve soil health

Conservation Practice 340: Cover Crop

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

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Soil health assessment (year 1) to evaluate current crop rotation in addressing soil organic matter depletion. Results are utilized to select a multi-species cover crop mix to add to the current crop rotation. Follow up assessment completed (year 3).

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.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.

E340E - Use of soil health assessment to assist with development of cover crop mix to improve soil health	September 2023	Page 1
---	----------------	----------



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 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 based on 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.
- 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.

E340E - Use of soil health assessment to assist with development of cover crop mix to improve soil health	September 2023	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

- 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.

E340E - Use of soil health assessment to assist with development of cover crop mix to improve soil health	September 2023	Page 3
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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)

Planned Management Rotation Including Cover Crop

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



CONSERVATION STEWARDSHIP PROGRAM

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 (%)

Establishment and Management Considerations:

Task	Provide information and details
Seedbed Preparation	
Seeding Date	
Seeding Depth	
Seeding 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)		

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, if livestock are included in the system consider cover crop species tolerant to grazing.



CONSERVATION STEWARDSHIP PROGRAM

- 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% of available cover crop forage.
- During implementation, cover crops must not be burned or harvested.
- During implementation, if livestock are included in the system maintain records of forage utilization.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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.
- 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.
- 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:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- 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.

Benchmark Management SCI = _____, Benchmark Management OM sub factor = _____

E340E - Use of soil health assessment to assist with development of cover crop mix to improve soil health	September 2023	Page 6
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CONSERVATION STEWARDSHIP PROGRAM

Planned Management SCI = _____,

Planned Management OM sub factor = _____

- Prior to implementation, if livestock are included in the system verify a grazing plan has been developed.
- 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.
- 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.

Applied Management SCI = _____, Applied Management OM sub factor = _____

- 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.
- After implementation, review soil health assessment results and any documentation of changes made 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

E340E - Use of soil health assessment to assist with development of cover crop mix to improve soil health	September 2023	Page 7
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340E

Additional Criteria for INDIANA

- Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)
- Use the In-Field Soil Health Assessment Worksheet found on the [eFOTG](#), Section III→Resource Concern List and Panning Criteria→In-Field Soil Health Assessments (SHAs) to complete a soil health assessment on the fields planned. Contact the State Soil Health Specialist for assistance in completing the assessment, if needed.
- Plant a mixture of 4 species of cover crops selected on the basis of producing higher volumes of organic material and root mass to maintain or increase soil organic matter.
- Choose plant species (Cover Crops) from the following:
 1. Use the Midwest Cover Crop Council Decision Tool to evaluate the best species for planting. Focus on cover crop species rated 3 or 4, for "Soil Builder" from the Midwest Cover Crop Council Decision Tool at: [Midwest Cover Crop Council Decision Tool](#) and,
 2. Using the Indiana Cover Crop Seeding Calculator, create a mix with a **minimum of 4 species**, ensuring that the mix has 50% or greater of plant canopy(biomass) of species rated 3 or 4 for soil building.
 3. The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools
 4. Refer to the Indiana Seeding Tool Guidelines for state specific cover crop seeding information. It is found in the eFOTG, SectionIV→Ecological Sciences Tools
 5. Cover crop species that winter kill must be seeded with an over-winter species to ensure cover in the spring.



- 6. Contact Grazing Specialist or Soil Health Specialist for guidance on developing a grazing plan.

CONSERVATION STEWARDSHIP PROGRAM

Cover Crop Species rated as a 3 or 4 for Soil Builder in the Midwest Cover Crop Council Decision Tool include:

NONLEGUME	Soil Building Score
Barley, Winter	3
Buckwheat	3
Millet, Japanese	3
Millet, Pearl	3
Oats	3
Rye, Winter Cereal	4
Ryegrass, Annual	4
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	3
Wheat, Winter	3

BRASSICAS	Soil Building Score
Radish, daikon type	3
LEGUMES	Soil Building Score
Clover, Berseem	3
Clover, Crimson	3
Clover, Red	3
Vetch, Hairy	3



CONSERVATION ENHANCEMENT ACTIVITY

E340F

CONSERVATION STEWARDSHIP PROGRAM

Cover crop to minimize soil compaction

Conservation Practice 340: Cover Crop

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

RESOURCE CONCERN: Soil

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.
- 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.

E340F - Cover crop to minimize soil compaction	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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:

- 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)

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.

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



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	

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- During implementation, cover crops must not be burned, grazed, or harvested.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, verify the cover crop mix includes both fibrous root and deep rooted systems.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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.

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340F

Additional Criteria for INDIANA

Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)

Select a cover crop mix of 2 or more plant species, one each fibrous rooted and deep rooted species.

- 1) fibrous rooted species include grasses and cereal grains
- 2) Deep rooted species include brassicas, peas,vetch, sunflowers and clovers

Choose plant species (Cover Crops) from the following:

- 1. Select species rated 3 or 4, for "Soil Builder" from the [Midwest Cover Crop Council Decision Tool](#) and
- 2. Using the Indiana Cover Crop Seeding Calculator, create a mix with a **minimum of 2 species** that has 50% or greater of plant canopy(biomass) of species rated 3 or 4 for soil building.
- 3. The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools
- 4. Refer to the Indiana Seeding Guidelines for state specific cover crop seeding information. It is found in the eFOTG, SectionIV→Ecological Sciences Tools

Cover Crop Species rated as a 3 or 4 for Soil Building in the Midwest Cover Crop Council Decision Tool include:

NONLEGUME	Soil Building Score
Barley, Winter	3
Buckwheat	3
Millet, Japanese	3
Millet, Pearl	3
Oats	3
Rye, Winter Cereal	4
Ryegrass, Annual	4
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	3
Wheat, Winter	3

BRASSICAS	Soil Building Score
Radish, daikon type	3
LEGUMES	Soil Building Score
Clover, Berseem	3
Clover, Crimson	3
Clover, Red	3
Vetch, Hairy	3



CONSERVATION ENHANCEMENT ACTIVITY

E340G

CONSERVATION STEWARDSHIP PROGRAM

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

Conservation Practice 340: Cover Crop

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

RESOURCE CONCERN: Water

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.
- Ensure herbicides used with crops are compatible with cover crop selections.

E340G - Cover crop to reduce water quality degradation by utilizing excess soil nutrients	July 2019	Page 1
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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 remove cover crop biomass or 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 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.

E340G - Cover crop to reduce water quality degradation by utilizing excess soil nutrients	July 2019	Page 2
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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.

Document excess nutrients identified in soil tests: Soil tests should be taken as close to production crop harvest as possible.

Field	Soil Test Date	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 (%)

Establishment and Management Considerations:

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



CONSERVATION STEWARDSHIP PROGRAM

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	

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- During implementation, cover crops must not be grazed, burned, harvested or biomass removed.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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.

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

E340G - Cover crop to reduce water quality degradation by utilizing excess soil nutrients	July 2019	Page 5
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY E340G

CONSERVATION STEWARDSHIP PROGRAM

Additional Criteria for INDIANA

Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)

Choose plant species (Cover Crops) that are winter hardy.

- ≥ 50% of the biomass must be winter hardy (seeding calculator).
- Winter hardy does not include: summer annuals (such as sorghum sudangrass), turnip, radish and oats.

Choose plant species (Cover Crops) from the following:

1. Use the Midwest Cover Crop Council Decision Tool to evaluate the best species for planting. Focus on cover crops rated 3 or 4, for "Nitrogen Scavenging" from the [Midwest Cover Crop Council Decision Tool](#) and,
2. Using the Indiana Cover Crop Seeding Calculator, create a mix, ensuring that the mix has 50% or greater of plant canopy(biomass) of species rated 3 or 4 for nitrogen scavenging.

The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools

Refer to the Indiana Seeding Tool Guidelines for state specific cover crop seeding information. It is found in the eFOTG, SectionIV→Ecological Sciences Tools.

NONLEGUMES	Nitrogen Scavenging Score
Barley, Winter	3
Millet, Japanese	4
Millet, Pearl	4
Oats	3
Rye, Winter Cereal	4
Ryegrass, Annual	4
Sorghum-sudangrass	4
Sudangrass	4
Triticale, Winter	3
Wheat, Winter	3

Cover Crop Species rated as a 3 or 4 for Nitrogen Scavenging in the Midwest Cover Crop Council Decision Tool include:

BRASSICAS	Nitrogen Scavenging Score
Radish-daikon type	4
Rapeseed	3
Turnip-forage type	3



CONSERVATION ENHANCEMENT ACTIVITY

E340H

CONSERVATION STEWARDSHIP PROGRAM

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: Plants

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.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.

E340H - Cover crops to suppress excessive weed pressures and break pest cycles	July 2019	Page 1
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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.
- 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:
 - To suppress weeds or compete with weeds.
 - Break pest life cycles or suppress of plant pests or pathogens.
 - Provide food or habitat for natural enemies of pests.
 - Release compounds such as glucosinolates that suppress soil borne pathogens or pests.



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.

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 (%)

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	

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, cover crops must not be grazed, burned, harvested or biomass removed.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- 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.
- 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.

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

E340H - Cover crops to suppress excessive weed pressures and break pest cycles	July 2019	Page 4
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY E340H

CONSERVATION STEWARDSHIP PROGRAM

Additional Criteria for INDIANA

Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)

The enhancement goal is to increase the benefit cover crops by doing more with them. Specifically, the goal is to have cover crops do one of the following: suppress or compete with weeds; break pest life cycles or suppress plant pests or pathogens; provide food or habitat for natural enemies of pests; or release compounds such as glucosinolates that suppress soil borne pathogens or pests. No single cover crop can do all of these so it is important to look to diversity in a mix and planning cover crop mixes for field specific conditions and goals.

Choose plant species (Cover Crops) from the following:

1. Use the Midwest Cover Crop Council Decision Tool to evaluate the best species for planting. Focus on cover crops rated 3 or 4, for "Weed Fighting" from the Midwest Cover Crop Council Decision Tool at: [Midwest Cover Crop Council Decision Tool](#) and,
2. Review Charts 4A and 4B of the Managing Cover Crops Profitably to determine Potential Advantages and Disadvantages of specific cover crop species related to your specific goal. The charts can be found at: [Managing Cover Crops Profitably Charts](#)
3. Using the Indiana Cover Crop Seeding Calculator, create a mix.
4. For weed suppression:
 - Ensure that the mix has 100% of plant canopy(biomass) of species rated 3 or 4 for weed fighting.
 - Cover crop mix just have a majority of species that will survive the winter
 - Cover crops will grow as long as possible, being terminated immediately before or immediately after planting.
 - Consider using a roller crimper to place high biomass residues on the surface
5. For breaking pest cycles:

E340H	January 2024	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Create the cover crop mix that compliments the next crop to be planted. (ie: if a legume is planned, reduce the amount of legumes in the cover crop mix).
 - Review Chart 4B from Managing Cover Crops Profitably and adjust mixes if specific species have potential disadvantages you are concerned about.
6. For providing food or habitat
 - Review Chart 4A from Managing Cover Crops Profitably and maximize species that are shown to benefit soil ecology and attracts beneficials.
 - Reduce or eliminate tillage
 7. To release compounds that suppress soil born pathogens
 - Review Chart 4A from Managing Cover Crops Profitably and maximize species that are shown to impact disease.
 8. The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools
 9. Refer to the Indiana Seeding Tool Guidelines for state specific cover crop seeding information. It is found in the eFOTG, SectionIV→Ecological Sciences Tools

Cover Crop Species rated as a 3 or 4 for Weed Fighting in the Midwest Cover Crop Council Decision Tool include:

NONLEGUME	Weed Fighting Score
Barley, Winter	3
Buckwheat	4
Millet, Pearl	3
Oats	4
Rye, Winter Cereal	4
Sorghum-sudangrass	3
Sudangrass	3
Triticale, Winter	3
Wheat, Winter	3

BRASSICA	Weed Fighting Score
Radish, daikon type	3
Turnip, forage type	3
LEGUME	Weed Fighting Score
Clover, Berseem	3
Clover, Crimson	3
Clover, Red	3
Vetch, Hairy	3



CONSERVATION ENHANCEMENT ACTIVITY

E340I

CONSERVATION STEWARDSHIP PROGRAM

Using cover crops for biological strip till

Conservation Practice 340: Cover Crop

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Establish alternating strips of cover crops in which one strip acts as a biological strip-tiller and the adjacent strip promotes soil health with high residue cover crops. This will facilitate planting of the subsequent cash crop into the biologically strip-tilled row without the need for mechanical disturbance.

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.
- Use a precision guidance system to ensure seeding is placed in the existing cover crop rows.
- Do not burn cover crop residue.
- Do not harvest or graze cover crop.

E340I – Using cover crops for biological strip till	July 2019	Page 1
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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.

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 (%)

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	



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- During implementation, cover crops must not be grazed, burned, harvested or biomass removed.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- 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:

- 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.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- 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.
- 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.

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

E340I – Using cover crops for biological strip till	July 2019	Page 3
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**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY
E340I**

**CONSERVATION
STEWARDSHIP
PROGRAM**

Additional Criteria for INDIANA

Podcasts/Videos of research professionals talking about bio strip-till

[The HAT Soil Health Podcast- Bio Strip-till | Hoosier Ag Today](#)

[Virtual Farm Visit - Precision Cover Crops / Bio Strip-Till with John Pike - YouTube](#)

[Cover Crop Selection for Bio Strip Till NDSU Soil Health](#)

Educational Articles about bio (or Precision) strip-till:

[SARE-Illinois Farmer Builds Precision Seeder to Maximize Cover Crop Advantage](#)

[BioStrip-Tillage-Factsheet.pdf \(mvca.on.ca\)](#)

Current NRCS Cover Crop Termination guidelines can be found in [eFOTG](#), Section IV→Conservation Practice Standards and Support Documents→Cover Crop (340)

Choose plant species (Cover Crops) from the following:

1. Plan to use a winter kill cover crop to be planted in the area that will be the row for next year's crop and plan to use an over-wintering species to be between the rows of next years crop.
 - Choose winter kill species like oats and radish and over-wintering species like cereal rye and cimson clover.
2. Using the Indiana Cover Crop Seeding Calculator, create a mix for both the in-row mix and the between-the-row mix.
3. The most recent version of the Indiana Cover Crop Seeding Calculator can be found on the [eFOTG](#), Section IV→Ecological Sciences Tools
4. Refer to the Indiana Seeding Tool Guidelines for state specific cover crop seeding information. It is found in the [eFOTG](#), SectionIV→Ecological Sciences Tools

E340I	January 2024	Page 1
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CONSERVATION ENHANCEMENT ACTIVITY

E345A

CONSERVATION STEWARDSHIP PROGRAM

Reduced tillage to reduce soil erosion

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description:

Establish a reduced tillage system to reduce soil loss. Field(s) must have a soil loss at or below the soil tolerance (T) level for water and wind 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 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 soil erosion prediction technology for water and wind erosion to determine the:

E345A - Reduced tillage to reduce soil erosion	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Amount of randomly distributed surface residue needed.
 - Time of year the residue needs to be present in the field.
 - Amount of surface soil disturbance allowed to reduce erosion to the desired level of average annual soil loss.
 - 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:

- 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)

- 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, 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.
- 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 the 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 and wind 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 = _____

- 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 ENHANCEMENT ACTIVITY

E345B

CONSERVATION STEWARDSHIP PROGRAM

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: Air

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 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.

E345B - Reduced tillage to reduce tillage induced particulate matter	July 2019	Page 1
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- Adopt tillage practices that reduce particulate emissions.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

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)

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, 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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 = _____

- 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 ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E345C

Reduced tillage to increase plant-available moisture

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: 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.
- 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.

E345C - Reduced tillage to increase plant-available moisture	July 2019	Page 1
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- Maintain a minimum 60 percent surface residue cover throughout the year.

CONSERVATION STEWARDSHIP PROGRAM





Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

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)

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, 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.
- During implementation, maintain a minimum 60 percent surface residue cover throughout the year to reduce evaporation from the soil surface.
- 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 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 = _____
- 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 the 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 = _____

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

E345C - Reduced tillage to increase plant-available moisture	July 2019	Page 4
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CONSERVATION ENHANCEMENT ACTIVITY

E345D

CONSERVATION STEWARDSHIP PROGRAM

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: Soil

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.
- 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

E345D - Reduced tillage to increase soil health and soil organic matter content	July 2019	Page 1
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STIR value rating shall be no greater than 80, and no primary inversion tillage implements (e.g. moldboard plow) shall be used.

CONSERVATION STEWARDSHIP PROGRAM

- 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:

- 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)

- 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, 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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 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 = _____
- 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 = _____**
- 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 = _____
- 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

E345D - Reduced tillage to increase soil health and soil organic matter content	July 2019	Page 4
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CONSERVATION ENHANCEMENT ACTIVITY

E345E

CONSERVATION STEWARDSHIP PROGRAM

Reduced tillage to reduce energy use

Conservation Practice 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Energy

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 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

E345E - Reduced tillage to reduce energy use	July 2019	Page 1
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prediction technologies must be used for determining energy use to document energy use reductions.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- 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)

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



CONSERVATION STEWARDSHIP PROGRAM

- 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, 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.
- During implementation, reduce the total energy consumption associated with field operations by at least 25% compared to the current benchmark tillage system.
- 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 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 = _____

E345E - Reduced tillage to reduce energy use	July 2019	Page 4
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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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



E345E - Reduced tillage to reduce energy use	July 2019	Page 5
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CONSERVATION ENHANCEMENT ACTIVITY

E372A

CONSERVATION STEWARDSHIP PROGRAM

Switch to Renewable Power Source

Conservation Practice 372: Combustion System Improvement

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

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 10 Year

Enhancement Description

Replace an existing 5-30 horsepower internal combustion engine with a new appropriately-sized electric motor powered by a new on-farm renewable source (wind, solar, geothermal, etc.).

Criteria

- Replace the existing internal combustion engine with a new electric motor that is powered by an on-farm renewable source such as wind, solar, geothermal, etc. that can adequately maintain the existing operating conditions (e.g., flow rates, pressures, etc.).
- The new electric motor must serve the same function and perform similar type of work as the existing internal combustion engine.
- The new electric motor and on-farm renewable source and related components or devices meet or exceed currently applicable federal, state, and local standards and guidelines.
- Components of this enhancement will meet the NRCS Conservation Practice Standard, Combustion System Improvement (Code 372).

E372A – Switch to renewable power source	August 2023	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

Prior to implementation

- Evaluate current operating conditions of the existing internal combustion engine including season of use and overall power needs.
- Evaluate site specific renewable energy alternatives.
- Evaluate power options during lack of production of renewable energy source.

During implementation

- Ensure installation meets federal National Electrical Code and any local or state codes.

After implementation

- Monitor and maintain system for the life span of the practice (10 years).

NRCS will:

- Provide and explain NRCS Conservation Practice Standard Combustion System Improvement (Code 372) as it relates to implementing this enhancement.
- As needed, provide additional technical assistance to the participant as requested.
- Review with the participant the costs and benefits of conversion to renewable energy source.
- Consider and document the air quality benefits in addition to the energy source savings.
- Develop written specifications describing site specific details of installation, including:
 - Description and amount of usage of the existing internal combustion system
 - Description and planned usage of the new electric motor and renewable energy source
 - Plan view showing the location of the practice installation in relation to other structures or natural features, where appropriate.
 - Method used to protect existing power provider from back feed from renewable source.
 - Electrical components that meet the requirements of the National Electrical Code.



- Operation and maintenance plan that is consistent with the purpose(s) of this practice, its intended life, and safety requirements.

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

E372B

**CONSERVATION
STEWARDSHIP
PROGRAM**

Renewable Energy Source for Large Internal Combustion Engines

Conservation Practice 372: Combustion System Improvement

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

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 10 Year

Enhancement Description

Replace an existing large (>30 horsepower) internal combustion engine with a new appropriately-sized electric motor powered by a new on-farm renewable source (wind, solar, geothermal, etc.).

Criteria

- Replace the existing internal combustion engine with a new electric motor that is powered by an on-farm renewable source such as wind, solar, geothermal, etc. that can adequately maintain the existing operating conditions (e.g., flow rates, pressures, etc.).
- The new electric motor must serve the same function and perform similar type of work as the existing internal combustion engine.
- The new electric motor and on-farm renewable source and related components or devices meet or exceed currently applicable federal, state, and local standards and guidelines.
- Components of this enhancement will meet the NRCS Conservation Practice Standard, Combustion System Improvement (Code 372).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

Prior to implementation

- Evaluate current operating conditions of the existing internal combustion engine including season of use and overall power needs.
- Evaluate site specific renewable energy alternatives.
- Evaluate power options during lack of production of renewable energy source.

During implementation

- Ensure installation meets federal National Electrical Code and any local or state codes.

After implementation

- Monitor and maintain system for the life span of the practice (10 years).

NRCS will:

- Provide and explain NRCS Conservation Practice Standard Combustion System Improvement (Code 372) as it relates to implementing this enhancement.
- As needed, provide additional technical assistance to the participant as requested.
- Review with the participant the costs and benefits of conversion to renewable energy source.
- Consider and document the air quality benefits in addition to the energy source savings.
- Develop written specifications describing site specific details of installation, including:
 - Description and amount of usage of the existing internal combustion system
 - Description and planned usage of the new electric motor and renewable energy source
 - Plan view showing the location of the practice installation in relation to other structures or natural features, where appropriate.
 - Method used to protect existing power provider from back feed from renewable source.
 - Electrical components that meet the requirements of the National Electrical Code.



- Operation and maintenance plan that is consistent with the purpose(s) of this practice, its intended life, and safety requirements.

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

E373A

CONSERVATION STEWARDSHIP PROGRAM

Dust suppressant re-application for stabilization

Conservation Practice 373: Dust Control on Unpaved Roads and Surfaces

APPLICABLE LAND USE: Farmstead and Associated Ag Land

RESOURCE CONCERN ADDRESSED: Air Quality Impacts

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Limit dust emissions by maintaining the surfaces of unpaved roads and areas in a stabilized condition. The periodic re-application of dust suppressants to unpaved surface areas will limit dust generation from vehicle and machinery activities or wind action.

Criteria

- Must be one or more sensitive areas affected by dust producing activities.
- Select a dust suppressant product that is appropriate for the site. Product consideration is based on the surface condition, surface material composition, known problem areas, proximity to sensitive areas and receptors, vehicle daily trips, types of vehicles traveling on the treated surface area, average vehicle speed, climate conditions, and timing of on-farm activities.
- Prior to re-application of any dust suppressant, ensure the condition of the unpaved road and surface area are in good condition. The surface is shaped in a manner that supports water runoff and drainage by removing potholes, washboards, berms, tire ruts, and road surface erosion.

E373A – Dust Control on Unpaved Roads and Surface	May 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Dust suppressants are always re-applied at the proper time to begin working effectively to stabilize an unpaved surface area. Re-apply as needed to maintain dust control effectiveness.
- The enhancement does not apply to solely relying on water application for controlling dust. Water alone generally has little residual effect and is therefore a short-term dust control solution. However, periodic wetting of surfaces treated with dust suppressant products as needed can help to effectively control dust under this enhancement. Do not convey reclaimed or non-potable water in tanks or plumbing used for storing and conveying potable water. Avoid over-application, which can saturate the surface and cause track-out and carryout of mud onto paved roads, tires to rut the unpaved surfaces, and the surface areas to erode and direct unwanted runoff into waterways.
- Identify any environmentally sensitive areas, such as stream crossings, drains and culverts, roadside wetlands or canals, and other unique surroundings. Avoid applying dust suppressants on bridges, over cattle guards, or other structures.
- Depending on the dust suppressant product selected, plan on closing roads or areas during pre-treatment activities, dust suppressant re-application, and post-application to allow time for the dust suppressant product to cure. Restricting traffic limits unsafe driving conditions and reduces any potential of dust suppressant product adhering to vehicles. Placing physical barriers, concrete blocks, closing gates, or taping off areas are examples for restricting traffic. If necessary, notify neighbors, employees, and other uses of planned closures ahead of time.
- All persons shall conduct their work and operations in accordance with proper safety codes and procedures for the type of equipment and operations being performed with due regard to safety of all persons and their property. Always take appropriate safety precautions.
- Follow the manufacturer’s and supplier’s recommendations for the dust suppressant product applied.
- All materials used for dust control must meet federal, state, and local regulations and be applied strictly in accordance with authorized registered uses, label directions, and all other regulations. Such materials will not cause negative impacts to ground and surface water quality and align with EPA and state water quality regulations.



CONSERVATION STEWARDSHIP PROGRAM

- Never apply waste oils or any material not intended for use as a dust suppressant.
- Dust suppressant containers shall be properly stored and disposed of in a safe manner according to all ordinance and procedures. Do not burn or bury containers.
- The manufacturer or supplier of a dust suppressant product must provide product information.
- Avoid causing any track-out or carry-out from vehicles leaving the treated surface area and entering paved roadways.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, identify each unpaved road and surface area covered under this enhancement:

Road/Area Segment	Width (ft)	Length (ft)	Square Feet	Square Yards (sq ft / 9 sq ft)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		Totals:		

- Prior to implementation, identify the dust suppressant products and provide product information, such as product contents, manufacturer suggested application and dilution rates, manufacturer performance claims, and recommended reapplication intervals.



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation and applicable to certified organic farms, verify that the selected dust suppressant product is approved for certified organic with the organic farm certifier.
- Prior to implementation, report the dust suppressant product target re-application rate (gallons per square yard), product dilution rate with water (if applicable), and the total gallons of dust suppressant solution to be re-applied.

Road/Area Segment	Dust Suppressant Product Name	Target Application Rate (gallons product/square yard)	Dilution (gallons of water/gallon of product)	Total gallons of dust suppressant solution to be applied
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
			Total:	

- During implementation, re-apply dust suppressants with a distribution tanker truck designed to produce a uniform application in controlled amounts. The truck may be equipped with a hose and nozzle for applying dust suppressants to inaccessible areas.
- After implementation, the application equipment must be cleaned responsibly. It is preferred that the supplier clean the application equipment at the supplier's yard.
- After implementation, survey the treated areas and note any runoff or excess product or overspray on adjacent vegetation. Examples include any negative effects such as leaf burn or discoloration, animals attracted to or licking the treated surface, or dust suppressant product residues in adjacent drains, culverts, streams, canal banks, etc. Early detection and clean-up minimize any potential for causing adverse impacts to the environment.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, maintain the treated surfaces in a good condition by periodically inspecting the treated surfaces and making repairs when needed. A maintenance application of the dust suppressant product will prolong the treated surface conditions and product effectiveness.
- After implementation, maintain documents including records, plans, receipts, and post-application notes. Maintain notes to include dates and description of any repairs or additional dust suppressant applications as it relates to implementing this enhancement.
- 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 Dust Control on Unpaved Roads and Surfaces (CPS 373) as it relates to this enhancement.
- Prior to implementation, visit the site to measure the square footage of the unpaved roads or areas covered under this enhancement. Subsequent site visits will ensure the treated area is maintained in a stabilized condition.
- Provide technical assistance to the participant as requested.
- After implementation, verify completion by site visits and 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 ENHANCEMENT ACTIVITY

E381A

CONSERVATION STEWARDSHIP PROGRAM

Silvopasture to improve wildlife habitat

Conservation Practice 381: Silvopasture Establishment

APPLICABLE LAND USE: Pasture; Forest; Associated Agricultural Land

RESOURCE CONCERN: Plants; Animals

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 that include 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.

E381A- Silvopasture to improve wildlife habitat	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.



CONSERVATION STEWARDSHIP PROGRAM

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 0.60 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



CONSERVATION STEWARDSHIP PROGRAM

score after implementation will equal 0.60 or greater.

WHEG score after implementation = _____

- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E381A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E381A the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage.
 - Only applicable where trees and shrubs can be added to open pastures and where they suitable for the desired forages, trees, livestock and wildlife. Not applicable in woodlands or where tree/shrub canopy presently exists.
 - Where trees will be added to existing pasture; site preparation should be based on existing vegetation and soil conditions. Refer to IN FOTG Standard (612) Tree/Shrub Establishment for guidance on site preparation, plantings plan specifications, operations and maintenance.
 - The recommended planting distance between trees is 40 feet in rows or blocks or population of 27 trees per acre. The recommended planting distance between shrubs is 30 feet in rows or blocks or population of 48 shrubs per acre. Trees will be thinned in order to maintain the understory of forages that accomplishes the producer’s goals. Mature tree populations and species should be based on the table in IN FOTG Standard (381) Silvopasture Establishment to insure adequate photosynthesis for forages.
 - The mature canopy will be less than 30% to allow for sufficient photosynthesis to meet the energy requirements of grazing livestock.
 - “Grasses, forbs, and legumes” will be selected utilizing the Indiana Seeding Calculator found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools in line with the IN FOTG 512 – Forage & Biomass Planting Standard to add diversity to the forage stand. Forage stands must be a minimum 25% desirable forbs and legumes.



CONSERVATION STEWARDSHIP PROGRAM

- Utilize and follow the Indiana Seeding Guidelines found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
- Grazing/browsing will be deferred until the forages, trees, and shrubs are well established. Livestock grazing will be deferred until the average height of the tree’s terminal bud exceeds the browsing height of the livestock or of sufficient size to resist breakage or until suitable use exclusion measures for the protection of the woody plants are established.
- Fence, if necessary, either permanent or temporary, will be used to protect the tree/shrub planting from excess livestock browsing and/or trampling damage, refer to IN FOTG Standards (472) Access Control and/or (382) Fence.
- Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	4
Native Grasses, Legumes and Forbs	6	12

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in larger rotated systems.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E381A the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.



CONSERVATION STEWARDSHIP PROGRAM

- A forage livestock balance indicating proper stocking rates.
- Pictures and/or aerial maps with dates taken to document lack of trees/shrubs.
- A copy of the IN WHEG for Pasture documenting current and planned conditions.
- Documentation of wildlife species of concern.

Notes and comments on this National Enhancement:

- The Indiana livestock forage balance sheet will be used for the forage balance documentation.
- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.
- Formerly E381133Z and E381137Z



CONSERVATION ENHANCEMENT ACTIVITY

E382A

CONSERVATION STEWARDSHIP PROGRAM

Incorporating “wildlife friendly” fencing for connectivity of wildlife food resources

Conservation Practice 382: Fence

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

RESOURCE CONCERN: Animals

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 jobsheet will specify:
 - Animal species of concern, both wildlife and domestic,
 - Wildlife movement specific modifications to be made to existing fences to meet these management objectives, or
 - Wildlife movement specific specifications that will be incorporated into newly constructed fences, and

E382A– Incorporating “wildlife friendly” fencing for connectivity of wildlife food resources	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Location of the "wildlife friendly" fence(s) and location of the habitat types affected by the fence.
- Examples:
 - Pronghorn antelope need to be afforded a smooth wire at the bottom of the fence with a 14" height above ground.
 - Deer need a maximum height of 42" with a minimum of 12" between the top two wires.
 - Fawns and turkeys need a stranded fence to negotiate (not woven wire).
 - Fences should be retrofitted to let down and put back up for migrating herds.
 - All open top pipes should be capped for songbirds.
 - If bats or sage grouse/lesser prairie chicken are selected as species of concern, then fences should be marked for visibility.
 - 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.



Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

- Prior to implementation, obtain an NRCS jobsheet 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.
- 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.
- During implementation, consult with NRCS if there are any changes to modification or construction techniques.
- After implementation, provide a map of the actual location of constructed or modified fences for review to verify the enhancement was implemented.
- 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.

NRCS will:

- 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.
- Prior to implementation, develop a jobsheet (or specification as required in the state) for the participant that details wildlife friendly construction techniques.
- During implementation, assist the participant with modification of construction techniques to allow fences to function for both wildlife and domestic species.
- After implementation, review actual fence location map and photo documentation of constructed or modified wildlife friendly fences.

E382A– Incorporating “wildlife friendly” fencing for connectivity of wildlife food resources	July 2019	Page 3
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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



E382A– Incorporating “wildlife friendly” fencing for connectivity of wildlife food resources	July 2019	Page 4
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E382A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E382A the following additional criteria apply in Indiana:
 - This enhancement considers wildlife movement in the retrofitting of existing fence and construction of new fence in a prescribed grazing system.
 - Wildlife species of concern in Indiana:
 - Songbirds: all existing and newly constructed open top pipe fence will be capped.
 - Fawns or turkey: dense woody or herbaceous cover must be within 150’ of the fence. Only stranded fence will be used, no woven wire.
 - If a different wildlife species is the target, then contact the State Biologist.
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage.
 - Document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E382B the following additional documentation requirements apply in Indiana:
 - Fence plans that follow IN FOTG 382 – Fence from the IN Fence Tool.
 - Notes and pen and ink changes to fence designs where needed to clarify implementation.



CONSERVATION ENHANCEMENT ACTIVITY

E382B

CONSERVATION STEWARDSHIP PROGRAM

Installing electrical fence offsets and wire for cross-fencing to improve grazing management

Conservation Practice 382: Fence

APPLICABLE LAND USE: Pasture, Range

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 20 Years

Enhancement Description

Retrofitting conventional fences such as barb wire, with new electrical offsets and electrical wire to facilitate cross-fencing for improved grazing management.

Criteria

- Electrical offsets will be attached to conventional fences to provide installation points for electrical tape, polywire, or other NRCS state approved electrical wire fence that will construct cross-fencing.
- The type and design of the fence retrofitting or construction will meet the management objectives and site challenges.
- The conventional or existing fence must meet state technical standards prior to the retrofit of the offsets.
- The offsets and electrical fence Implementation Requirement (IR) or jobsheet will specify:
 - Animal species of concern, both wildlife and domestic
 - Installation of cross-fence according to the conservation plan map
 - Installation of offsets and electric fence according to fence specifications

E382B– Installing electrical fence offsets and wire for cross-fencing to improve grazing management.	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

Adoption Requirements

This enhancement is considered adopted when the criteria is met, documentation records are provided, and results viewed on the planned location.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, obtain NRCS Implementation Requirement (IR) or jobsheet that provides the construction specification for the offsets and electric cross-fence.
- Prior to implementation, develop a map with assistance from NRCS as needed, which identifies the location(s) of the conventional fence and the location(s) of the retrofitting with offsets and electrical cross-fencing.
- Prior to implementation, consult with NRCS on the quality of the existing conventional fence.
- During implementation, consult with NRCS if there are any changes or modifications to the material or construction techniques.
- After implementation, provide a map of the actual location(s) of construction of the offsets and electrical cross-fence(s) for review.
- After implementation, provide pictures of newly constructed offsets and cross-fence(s) showing the specified construction specifications were implemented.

NRCS will:

- Provide technical assistance as requested.
- Prior to implementation, as requested, assist the participant in the development of a map identifying the location(s) of the conventional fence and the location(s) of the retrofitting with offsets and electrical cross-fencing.
- Prior to Implementation, develop an Implementation Requirement or jobsheet with construction specifications.

E382B– Installing electrical fence offsets and wire for cross-fencing to improve grazing management.	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, provide technical determination of the quality of the existing conventional fence to state technical standards.
- During implementation, assist the participant with any modifications to the construction specifications when needed.
- After implementation, review offsets and electric cross-fence(s) location map.
- After implementation, certify offset and cross-fence(s) construction meets the Implementation Requirements (IR) or jobsheet design.

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

E382B– Installing electrical fence offsets and wire for cross-fencing to improve grazing management.	August 2019	Page 3
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**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E382B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E382B the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage.
 - Document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.
 - Electric fencing will be grounded according to manufacturers recommendations and sufficient enough in voltage to maintain the planned animals.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E382B the following additional documentation requirements apply in Indiana:
 - Fence plans that follow IN FOTG 382 – Fence from the IN Fence Tool.
 - Notes and pen and ink changes to fence designs where needed to clarify implementation.

Notes and comments on this National Enhancement:

- None.



CONSERVATION ENHANCEMENT ACTIVITY

E386A

CONSERVATION STEWARDSHIP PROGRAM

Enhanced field borders to reduce soil 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: Soil

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 (water erosion) or most erosion wind directions (wind erosion).
- Field borders shall be established to 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 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.

E386A - Enhanced field borders to reduce soil erosion along the edge(s) of a field	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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:
 - 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.
 - 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.
 - 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



CONSERVATION STEWARDSHIP PROGRAM

purpose of the tillage is strictly to relieve soil compaction and increase infiltration rates to provide a better media for reestablishment of vegetation and field border function.

- 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.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, prepare the planned area for vegetation establishment. Refer to NRCS Conservation Practice Standard Field Border (Code 386). (NRCS will provide technical assistance, as needed.) Total planned amount of field border extension = _____ 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. (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, planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Lime and Fertilizer Required	

- 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



CONSERVATION STEWARDSHIP PROGRAM

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 Field Border (Code 386) 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
- 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 Field Border (Code 386).
 - 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.

E386A - Enhanced field borders to reduce soil erosion along the edge(s) of a field	July 2019	Page 5
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CONSERVATION STEWARDSHIP PROGRAM

- 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

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

E386B

CONSERVATION STEWARDSHIP PROGRAM

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: Soil

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.
- 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.

E386B - Enhanced field borders to increase carbon storage along the edge(s) of a field	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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:
 - 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.
 - 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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.





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. Refer to NRCS Conservation Practice Standard Field Border (Code 386). (NRCS will provide technical assistance, as needed.) Total planned amount of field border extension = _____ 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. (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 Technique	
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



CONSERVATION STEWARDSHIP PROGRAM

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 Field Border (Code 386) 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
- 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 Field Border (Code 386).
 - 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.

E386B - Enhanced field borders to increase carbon storage along the edge(s) of a field	July 2019	Page 5
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CONSERVATION STEWARDSHIP PROGRAM

- 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

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

E386C

CONSERVATION STEWARDSHIP PROGRAM

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: Air

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 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.

E386C - Enhanced field borders to decrease particulate emissions along the edge(s) of a field	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.
 - 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 the plants ability to intercept particulate emissions. 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.
 - 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.

E386C - Enhanced field borders to decrease particulate emissions along the edge(s) of a field	July 2019	Page 2
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- Avoid vehicle traffic when soil moisture conditions are saturated.
- Maintain records of the field border maintenance as needed by the land user.

CONSERVATION STEWARDSHIP PROGRAM



E386C - Enhanced field borders to decrease particulate emissions along the edge(s) of a field	July 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. Refer to NRCS Conservation Practice Standard Field Border (Code 386). (NRCS will provide technical assistance, as needed.) Total planned amount of field border extension = _____ 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. (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 Technique	
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.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet

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 Field Border (Code 386) 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
- 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 Field Border (Code 386).
 - 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.

E386C - Enhanced field borders to decrease particulate emissions along the edge(s) of a field	July 2019	Page 5
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CONSERVATION STEWARDSHIP PROGRAM

- 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

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

E386D

CONSERVATION STEWARDSHIP PROGRAM

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: Animals

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.
- **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.

E386D - Enhanced field borders to increase food for pollinators along the edge(s) of a field	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.
 - When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning



CONSERVATION STEWARDSHIP PROGRAM

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.





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. Refer to NRCS Conservation Practice Standard Field Border (Code 386). (NRCS will provide technical assistance, as needed.) Total planned amount of field border extension = _____ 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. (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 Technique	
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.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____ feet

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 Field Border (Code 386) 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
- 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 Field Border (Code 386).
 - 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.

E386D - Enhanced field borders to increase food for pollinators along the edge(s) of a field	July 2019	Page 5
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CONSERVATION STEWARDSHIP PROGRAM

- 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

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E386D

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E386D the following criteria apply in Indiana:
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool (primary purpose pollinator) will be used when developing seeding mixes for this practice. Mixes generated in the seeding tool, for the specific resource concerns identified, will meet the criteria of this enhancement.
 - To encourage the forb component, it is strongly encouraged to sow the seeding mixture during the dormant season (12/1 to 4/1).
 - Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E386D the following documentation requirements apply in Indiana:
 - Participants will be provided a suitable planting list from the Seeding Tool listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice. Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on this National Enhancement

- Must create or enhance field borders in this enhancement to a minimum 40 foot width

E386D	March 2020	Page 1



CONSERVATION ENHANCEMENT ACTIVITY

E386E

CONSERVATION STEWARDSHIP PROGRAM

Enhanced field borders to increase wildlife food and habitat 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: Animals

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 habitat along the edge(s) of the field. The extended field border will also provide enhanced wildlife habitat continuity.

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.
- Field borders shall be established to a mixture adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.

E386E - Enhanced field borders to increase wildlife food and habitat along the edge(s) of a field	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Plants selected for field borders will have the physical characteristics necessary to produce wildlife food and cover 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.
 - 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. Refer to NRCS Conservation Practice Standard Field Border (Code 386). (NRCS will provide technical assistance, as needed.) Total planned amount of field border extension = _____ 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 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. (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 Technique	
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.



CONSERVATION STEWARDSHIP PROGRAM

- 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
Total areas connected = _____ Total acres connected = _____

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 Field Border (Code 386) 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
- 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 = _____
- 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 Field Border (Code 386).
 - 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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 and areas connected. Total implemented amount of field border extension = _____ feet
Total areas connected = _____ Total acres connected = _____

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

E386E - Enhanced field borders to increase wildlife food and habitat along the edge(s) of a field	July 2019	Page 6
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E386E

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E386E the following criteria apply in Indiana:
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool (primary purpose pollinator) will be used when developing seeding mixes for this practice. Mixes generated in the seeding tool, for the specific resource concerns identified, will meet the criteria of this enhancement.
 - Any prepackaged mixes must be approved prior to seeding.
 - When planning for specific wildlife, seek assistance from professional wildlife biologists, Farm Bill Biologists, and DNR District Biologists. Indiana Biology Technical Note 4, also contains information about individual species or groups.
 - Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E386E the following documentation requirements apply in Indiana:
 - Participants will be provided Job Sheets from the Seeding Tool listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice.



CONSERVATION STEWARDSHIP PROGRAM

- Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on this National Enhancement

- Create or enhance field border to a minimum 40 foot width.





CONSERVATION ENHANCEMENT ACTIVITY

E390A

CONSERVATION STEWARDSHIP PROGRAM

Increase riparian herbaceous cover width for sediment and nutrient reduction

Conservation Practice 390: Riparian Herbaceous Cover

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

RESOURCE CONCERN: Water

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 and 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.
- 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.

E390A- Increase riparian herbaceous cover width for sediment and nutrient reduction	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.)
- 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.)

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.)

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, 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, control harmful pests at the site, as necessary, and in a manner that mitigates impacts to pollinators.
- 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:

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390) to show how it relates to this enhancement.
- Prior to implementation, verify the enhancement is planned for cropland.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for riparian herbaceous cover.
- 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:
 - Preparing a site plan that meets NRCS Conservation Practice Standard Riparian Herbaceous Cover (CPS 390).
 - Selecting the stiff-stemmed species of grasses and/or perennial forbs best suited to site saturation and inundation 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.

E390A- Increase riparian herbaceous cover width for sediment and nutrient reduction	July 2019	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- After implementation, verify the vegetation was established to specifications developed for the site.
- 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 ENHANCEMENT ACTIVITY

E390B

CONSERVATION STEWARDSHIP PROGRAM

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: Animals

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.
- 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.

E390B- Increase riparian herbaceous cover width to enhance wildlife habitat	July2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.

E390B- Increase riparian herbaceous cover width to enhance wildlife habitat	July2019	Page 2
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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.)
- Prior to implementation, in areas that are highly disturbed and 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.)

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.)

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.
- After implementation, control harmful pests at the site, as necessary, and in a manner that mitigates impacts to pollinators.



CONSERVATION STEWARDSHIP PROGRAM

- 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:

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390) to show how it relates to this enhancement.
- Prior to implementation, verify this enhancement is planned for cropland.
- Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species and meet with participant to review the Management Plan.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for riparian herbaceous cover.
- Prior to implementation, verify no plants are on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
 - Planned site preparation meets NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390).
 - Selecting plant species that meet the 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.
 - Select planting techniques and timing that is appropriate for the site and soil conditions.
 - Plan the use of additional erosion control, as needed for the site.
 - Prepare 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.

E390B- Increase riparian herbaceous cover width to enhance wildlife habitat	July2019	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- After implementation, verify the vegetation was established to specifications developed for the site.
- 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

E390B- Increase riparian herbaceous cover width to enhance wildlife habitat	July2019	Page 5
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**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E390B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E390B the following criteria apply in Indiana:
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (390) Riparian Herbaceous Cover or (primary purpose wildlife) will be used when developing seeding mixes for this practice.
 - When primary purpose is wildlife general: select forbs that will provide blooms throughout the growing season-at least one native forb or legume per bloom period, or introduced legumes that provide a nectaring source throughout the growing season.
 - When the primary purpose if pollinators: following the IN FOTG Standard (645) Upland Wildlife Management standard, additional criteria for pollinators. A minimum of nine forbs, three per bloom period will be used in addition to planned grasses and legume.
 - Any prepackaged mixes must be approved prior to seeding.
 - Management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.



CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E390B the following documentation requirements apply in Indiana:
 - Participants will be provided Job Sheets from the seeding calculator listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on this National Enhancement

- This enhancement only applies to the expansion and enhancement of an existing 35 foot herbaceous riparian buffer.



CONSERVATION ENHANCEMENT ACTIVITY

E391A

CONSERVATION STEWARDSHIP PROGRAM

Increase riparian forest buffer width for sediment and nutrient reduction

Conservation Practice 391: Riparian Forest Buffer

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

RESOURCE CONCERN: Water

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 and 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.

E391A-Increase riparian forest buffer width for sediment and nutrient reduction	January 2022	Page 1
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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.



United States Department of Agriculture

CONSERVATION STEWARDSHIP PROGRAM





Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- 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 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)

- 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.
- 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.
- During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.
- During implementation, conduct planting of selected species according to dates, methods, spacing and other requirements listed in the planting plan.
- During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

- ❑ After Implementation, control harmful pests and vegetation 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 water quality improvement purpose. If livestock are present, follow a Prescribed Grazing Plan (Code 528) and defer grazing for a minimum of two years. 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, verify the enhancement is planned for cropland.
- ❑ 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:
 - 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.
 - Selecting planting techniques and timing appropriate for the site and soil conditions.
 - 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.

E391A-Increase riparian forest buffer width for sediment and nutrient reduction	January 2022	Page 5
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CONSERVATION STEWARDSHIP PROGRAM

- 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.

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E391A

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E391A the following addition criteria apply to Indiana:

- Buffer width will be increased to 60 feet and may be extended up to 180 feet, but no greater than the width of the geomorphic floodplain, unless evidence of scour erosion, debris deposits, or sediment deposition (see below).
- Zone 2, for any stream order classification, may be widened to include areas of overland out-of-bank flow that shows evidence of scour erosion, debris deposits, or sediment deposition.
- Where ephemeral, concentrated flow or sheet and rill erosion is a concern in the area up-gradient, install a vegetated strip of grasses and/or forbs (Zone 3). (See IN FOTG Standard (391) Riparian Forest Buffer) When Zone 3 is used it will be applied in accordance with IN FOTG Standard (327) Conservation Cover with a minimum width of 20 feet.
- The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (612) Tree and Shrub Establishment will be used when developing seeding mixes for this practice.
- Woody species selection, seedling rates, and site adaptation will be consistent with the requirement in the IN NRCS Seeding Calculator and/ or Tables in the IN FOTG Standard (391) Riparian Forest Buffer. Tree and/or shrub plantings will follow site preparation, planting dates, planting and storage guidelines as detailed in IN FOTG Standard (612) Tree/Shrub Establishment.
- Control annual weeds as often as needed, not to exceed three years post-planting, using mowing, spot treatments of herbicides, prescribed burning, or other until the perennial planted species are established.
- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.



CONSERVATION STEWARDSHIP PROGRAM

- Removed trees for timber are allowed to be sold, however any trees removed in order to meet this Enhancement must follow the *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*, attached to the Indiana CSP Wildlife Species Guidance (2020). Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements for removing those individual trees. Participants and loggers are encouraged to seek out possible requirements for non-Federal Actions for T&E Species directly from the USFWS, and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.
- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting the riparian area from livestock, machinery, and people.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E391A the following additional documentation requirements apply in Indiana:

- Participants will be provided Job Sheets from the seeding calculator listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
- Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Documentation of the species and quantity of trees planted.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on the National Enhancement:

- This practice is only applicable on cropland.
- This enhancement only applies to the expansion and enhancement of an existing 35 foot forested riparian buffer
- Not compatible with any E391 or E390 enhancements
- Formerly: E391118Z and E391126Z



CONSERVATION ENHANCEMENT ACTIVITY

E391B

CONSERVATION STEWARDSHIP PROGRAM

Increase stream shading for stream temperature reduction

Conservation Practice 391: Riparian Forest Buffer

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

RESOURCE CONCERN: Water

PRACTICE LIFE SPAN: 15 Years

Enhancement Description

Riparian area tree canopy cover density is increased and the extent of the forested riparian area is increased to provide greater stream shading.

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.
- Where necessary to improve stream shading, increase canopy cover density in the existing buffer area.
- In addition to providing shading, 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 and the intended purpose of providing stream shading.

E391B-Increase stream shading for stream temperature reduction	August 2019	Page 1
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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

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- 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 plant species that are adapted to the specific site and that meet the goal of providing increased stream shading.

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

- 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.
- 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 and in a manner that limits effects to pollinators. Inspect and maintain tubes and protection measures regularly.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, livestock and wildlife may need be controlled or excluded to achieve the buffer’s stream shading purpose. If livestock are present, follow a Prescribed Grazing Plan (Code 528) and defer grazing for a minimum of two years. 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.
 - The potential for denser species plantings and focus in areas that will provide the most shade to the stream throughout the day.
 - 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.

E391B-Increase stream shading for stream temperature reduction	August 2019	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- 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 goal of greater stream shading. 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.

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

E391B-Increase stream shading for stream temperature reduction	August 2019	Page 5
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E391B

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E391B the following addition criteria apply to Indiana:

- Buffer width will be increased to 60 feet and may be extended up to 180 feet, but no greater than the width of the geomorphic floodplain.
- Where ephemeral, concentrated flow or sheet and rill erosion is a concern in the area up-gradient, install a vegetated strip of grasses and/or forbs (Zone 3). (See IN FOTG Standard (391) Riparian Forest Buffer) When Zone 3 is used it will be applied in accordance with IN FOTG Standard (327) Conservation Cover with a minimum width of 20 feet.
- The buffer canopy will be established to achieve at least 50% crown cover with an average projected canopy shade length equal to or greater than the planned width of the water body that needs shade protection (See Table 2 of 391 Standard). Place trees and shrubs with high shade values nearest the water course or body. Shoreline or channel relief (e.g. deeply incised channels) and topographic shading will be taken into account in selecting species
- The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (612) Tree and Shrub Establishment will be used when developing seeding mixes for this practice.
- Woody species selection, seedling rates, and site adaptation will be consistent with the requirement in the IN NRCS Seeding Calculator and/ or Tables in the IN FOTG Standard (391) Riparian Forest Buffer. Tree and/or shrub plantings will follow site preparation, planting dates, planting and storage guidelines as detailed in IN FOTG Standard (612) Tree/Shrub Establishment.
- Control annual weeds as often as needed, not to exceed three years post-planting, using mowing, spot treatments of herbicides, prescribed burning, or other until the perennial planted species are established.



CONSERVATION STEWARDSHIP PROGRAM

- In areas with endangered or threatened snakes (Northern Copperbelly water snake, Eastern Massasauga rattlesnake, Kirtland’s Snake) management activities will not be performed from April 1 through October 31.
- Removed trees for timber are allowed to be sold, however any trees removed in order to meet this Enhancement must follow the *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*, attached to the Indiana CSP Wildlife Species Guidance (2018). Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements for removing those individual trees. Participants and loggers are encouraged to seek out possible requirements for non-Federal Actions for T&E Species directly from the USFWS, and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.
- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting the riparian area from livestock, machinery, and people.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E391B the following additional documentation requirements apply in Indiana:

- Participants will be provided Job Sheets from the seeding calculator listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
- Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Documentation of the species and quantity of trees planted.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on the National Enhancement:

- This practice is only applicable on cropland.
- This enhancement only applies to the expansion and enhancement of an existing 35 foot forested riparian buffer
- Not compatible with any E391 or E390 enhancements
- Formerly E391127Z



CONSERVATION ENHANCEMENT ACTIVITY

E391C

**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; Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals

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, terrestrial wildlife and pollinator needs and have multiple values such as habitat enhancement and nutrient uptake.

E391C-Increase riparian forest buffer width to enhance wildlife habitat	January 2022	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Dominant vegetation will consist of existing, naturally regenerated, or seeded/planted trees and shrubs suited to the soil and hydrology of the site.
- 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.

E391C-Increase riparian forest buffer width to enhance wildlife habitat	January 2022	Page 2
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Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- 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 dates, methods, 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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. 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.

E391C-Increase riparian forest buffer width to enhance wildlife habitat	January 2022	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- 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.

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E391C

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E391C following additional criteria apply to Indiana:

- Buffer width will be increased to 60 feet and may be extended up to 180 feet, but no greater than the width of the geomorphic floodplain.
- Where ephemeral, concentrated flow or sheet and rill erosion is a concern in the area up-gradient, install a vegetated strip of grasses and/or forbs (Zone 3). (See IN FOTG Standard (391) Riparian Forest Buffer) When Zone 3 is used it will be applied in accordance with IN FOTG Standard (327) Conservation Cover with a minimum width of 20 feet.
- The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (612) Tree and Shrub Establishment will be used when developing seeding mixes for this practice.
- Woody species selection, seedling rates, and site adaptation will be consistent with the requirement in the IN NRCS Seeding Calculator and/ or Tables in the IN FOTG Standard (391) Riparian Forest Buffer. Tree and/or shrub plantings will follow site preparation, planting dates, planting and storage guidelines as detailed in IN FOTG Standard (612) Tree/Shrub Establishment.
- Control annual weeds as often as needed, not to exceed three years post-planting, using mowing, spot treatments of herbicides, prescribed burning, or other until the perennial planted species are established.
- Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.



CONSERVATION STEWARDSHIP PROGRAM

- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.
- Removed trees are allowed to be sold, however any trees removed in order to meet this Enhancement must follow the *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*. Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements for removing those individual trees. Participants and loggers are encouraged to seek out possible requirements for non-Federal Actions for T&E Species directly from the USFWS, and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.
- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting the riparian area from livestock, machinery, and people.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E391136Z the following documentation requirements apply in Indiana:

- Participants will be provided Job Sheets from the seeding calculator listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
- Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Documentation of the species and quantity of trees planted.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on the National Enhancement:

- This enhancement only applies to the expansion and enhancement of an existing 35 foot forested riparian buffer.
- Not Compatible with other E391 practices, Not compatible with any 390 enhancements



CONSERVATION ENHANCEMENT ACTIVITY

E393A

CONSERVATION STEWARDSHIP PROGRAM

Extend existing filter strip to reduce water quality impacts

Conservation Practice 393: Filter Strip

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Extend existing filter strips for water quality protection. 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.
- 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.

E393A - Extend existing filter strip to reduce water quality impacts	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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:
 - able to withstand partial burial from sediment deposition and
 - 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 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



CONSERVATION STEWARDSHIP PROGRAM

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 NRCS Conservation Practice Standard Filter Strip (Code 393). (NRCS will provide technical assistance, as needed.) Total planned amount of filter strip extension = _____ 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.
- 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 filter strip implemented. Total implemented amount of filter strip extension = _____ feet



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Prior to implementation, verify the enhancement is planned for cropland.
- Prior to implementation, provide and explain NRCS Conservation Practice Filter Strip (Code 393) 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
- 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 Filter Strip (Code 393).
 - 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.
- 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.



CONSERVATION ENHANCEMENT ACTIVITY

E399A

CONSERVATION STEWARDSHIP PROGRAM

Fishpond management for native aquatic and terrestrial species

Conservation Practice 399: Fishpond Management

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Pond rehabilitation, buffer, and watershed management actions are taken to improve habitat for native species of fish, amphibians, and shorebirds.

Criteria

- The pond must meet the requirements of NRCS Conservation Practice Standard Pond (Code 378).
- Where feasible, retain features such as trees in the upper reaches of the pond and stumps in the pool area. If necessary, shape upper reaches of the pond to provide shallow areas and wetland habitat.
- Based on client objectives and local regulations develop a pond management plan that specifies species selection, stocking rates, and ratios. Develop species selection, stocking rates, and ratios with respect to the size, depth, water temperature, and water quality of the pond to be stocked.
- Use native species that are locally adapted for use in ponds, lakes, or reservoirs. Comply with state and local regulations when selecting species to be stocked. Control nuisance non-native species in compliance with state and local regulations.

E399A-Fishpond management for native aquatic and terrestrial species	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- If needed, use of supplemental aeration equipment to improve gas transfer, water quality, and minimize fish stress within the impoundment.
- Protect the site from flooding, sedimentation, and contamination. Use erosion control and nutrient and pest management conservation practices in the watershed to maintain water quality and reduce sediment production.
- Establish a minimum 35-foot vegetated buffer around the pond. Improve the diversity of native or natural shrub and/or herbaceous plant species suitable for the site and appropriate for the riparian and aquatic species. Exclude livestock from the pond and the buffer area.
- Grassy cover around the impoundment that may provide nesting habitat should not be mowed until after the primary nesting season.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, have a written plan detailing proposed actions, including proposed fish stocking and pond, pond buffer area, and watershed actions. Refer to NRCS Conservation Practice Standards Riparian Herbaceous Cover (Code 391) and Fishpond Management (Code 399). (NRCS will provide technical assistance, as needed.)
- During implementation, if necessary as per the plan, shape upper reaches of the pond to provide shallow areas and wetland habitat.
- During implementation, if necessary as per the plan, install aeration equipment.
- During implementation, as per the plan, stock the pond using native species that are locally adapted and that comply with state and local regulations.
- During implementation, establish a minimum 35-foot vegetated buffer around the pond. In this buffer, improve the diversity of native or natural shrub and/or herbaceous plant species suitable for the site.
- During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- After implementation, use erosion control and nutrient and pest management conservation practices and activities in the pond’s contributing watershed to maintain water quality, reduce sediment production, and control pests.
- After implementation, protect the pool and buffer area from livestock, and do not mow the buffer area around the impoundment until after the primary nesting season.

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, verify the pond meets the requirements of NRCS Conservation Practice Standards Pond (Code 378).
- Prior to implementation, provide and explain NRCS Conservation Practice Standards Fishpond Management (Code 399) and Riparian Herbaceous Cover (Code 390) as they relate to implementing this enhancement.

E399A-Fishpond management for native aquatic and terrestrial species	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, based on client objectives and local regulations, help develop a pond management plan that specifies species selection, stocking rates, and ratios, and that complies with state and local regulations.
- Prior to implementation, as needed, prepare specifications for applying this enhancement using NRCS Conservation Practice Standards Riparian Herbaceous Cover (Code 391) and Fishpond Management (Code 399), approved state implementation requirements, national technical notes, state technical notes, and other appropriate guidance.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify that fish stocking was done properly, that buffer vegetation was established to specifications developed for the site, and that appropriate erosion control, nutrient management, and pest management conservation practices are being used in the pond's contributing watershed.
- After implementation, verify the pond and buffer area is being protected from inappropriate mowing and livestock 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

E399A-Fishpond management for native aquatic and terrestrial species	August 2019	Page 4
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E399A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E399137X the following criteria apply in Indiana:
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (327) Conservation Cover or (612) Tree and Shrub planting will be used when developing a planting list for the buffer around the pond.
 - IN FOTG Standard (645) Upland Wildlife Habitat Management, (390) Riparian Herbaceous Cover, and IN Biology Technical Note: Upland Wildlife Management contain information on species selection, specific wildlife needs, and a list of tree and shrub species and their benefits for specific wildlife.
 - Control annual weeds as often as needed, not to exceed three years post-planting, using mowing, spot treatments of herbicides, prescribed burning, or other until the perennial planted species are established.
 - Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.
 - Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting the pond from livestock, machinery, and people.
 - Consider consulting a IDNR Fisheries biologist, or private fisheries biologist for pond management plan.
 - If winterkill is a concern, mechanical water aerating equipment, with capacities of 100 gallons per minute per acre-foot, can be used.



CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E399A the following documentation requirements apply in Indiana:
 - Participants will be provided Job Sheets from the seeding calculator listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Documentation of the species and quantity of trees planted.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.
 - Aeration equipment specifications, including size and capacity.
 - A copy of the pond management plan generated by a qualified individual.

Notes and comments on this National Enhancement

- Buffers will be a minimum of 35 foot wide.



CONSERVATION ENHANCEMENT ACTIVITY

E412A

CONSERVATION STEWARDSHIP PROGRAM

Enhance a grassed waterway

Conservation Practice 412: Grassed Waterway

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

RESOURCE CONCERN ADDRESSED: Water Quality Degradation

ENHANCEMENT LIFE SPAN: 10 year

Enhancement Description

Extending, enlarging or increasing protection for an existing grassed waterway for better water quality protection.

Criteria

This enhancement shall include all the following:

- Enhance the waterway by improving either size, length or outlet, using one or more of the following options:
 - Lengthen the waterway further up the slope
 - Extend the waterway further past its current outlet location
 - Reshape, widen, or reconstruct part of the waterway to achieve more flow capacity
- Protect the waterway to help it function properly and improve life expectancy by completing 3 out of 4 the following:
 - Create GPS shapefiles and must be used by applicators for auto-shut off of equipment (spraying and/or fertilizing) passing by or through waterway
 - For fields that the producer owns or operates in the watershed, The STIR value shall be no greater than 40 for each crop in the rotation (maintain high residue)
 - Uniformly distribute residues over the entire field (don't bale residue)
 - Install drain tile on one or both sides of the waterway to maintain vegetation



Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- Prior to implementation, choose which fields contain waterways that will be addressed using this enhancement. Decide what will be done from the criteria list.

Field	Waterway ID	Criteria Chosen

- IF selecting to GPS the boundary of the waterway, provide NRCS with the shapefiles.
- Prior to implementation, if seeding will be done, prepare the planned acres for vegetation establishment. Total planned amount of waterway = _____ feet. Prior to implementation, select grasses best suited to site conditions. Refer to NRCS Conservation Practice Standard Grassed Waterway (Code 412).

-

Species	Seeding Rate (lb/ac pure live seed)	Note specific species characteristic(s)

NRCS will:

- As needed, provide technical assistance in selecting the best option that would meet the criteria of the enhancement.
- As needed, design the grassed waterway for the participant as requested.
- As needed, provide additional assistance to the participant as requested.
- If selecting the option to improve water infiltration in the watershed above the waterway, NRCS will provide the 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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





CONSERVATION ENHANCEMENT ACTIVITY

E420A

CONSERVATION STEWARDSHIP PROGRAM

Establish pollinator habitat

Conservation Practice 420: Wildlife Habitat Planting

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Seed or plug nectar and pollen producing plants to establish or improve pollinator habitat. These areas may include, but are not limited to, field borders, vegetative barriers, contour buffer strips, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.

Criteria

- A Wildlife Habitat Evaluation Guide (WHEG), must be used to show that 0.5 planning criteria has been met for the inadequate wildlife habitat resource concern. The WHEG used to meet this criterion does not need to be specific to pollinator habitat. (If WHEG score is less than 0.5, consider E327A.)
- A WHEG specific to pollinator habitat must be used to show that, post implementation, the Enhancement is expected to result in the establishment of suitable pollinator habitat or will improve the habitat value of existing pollinator habitat. The following may be used to meet this criterion:
 - [For circumstances where planning criteria for pollinator habitat is currently below 0.5] Post implementation, planning criteria for pollinator habitat is equal to or greater than 0.6.

OR

- [For circumstances where planning criteria for pollinator habitat is at

E420A – Establish pollinator habitat	May 2023	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

0.5 or greater] Post implementation, planning criteria for pollinator habitat increases at least 0.1

- 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. The NRCS State Biologist must agree to habitat areas less than 0.25 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 as described below:

A. Planting Criteria

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, and / or shrubs. Plants that produce toxic nectar will not be planted.
3. Any other use of the pollinator habitat area must not compromise its intended purpose.
4. Site selection should consider existing weed pressures and available methods of control. Delay planting if high weed pressure requires aggressive treatment.
5. Suppression of weeds and plant establishment will be accomplished according to the appropriate NRCS conservation practice standards and specifications.
6. Successful establishment is when the planting is providing at least 80% canopy cover, visually estimated, and that the resultant cover consists primarily of the early, mid, and late blooming species planted for pollinators.
7. Insecticides should not be used in the habitat planting area.
8. 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.
9. After a pollinator enhancement has been planted, herbicides may be spotsprayed to remove broad-leaf weeds, or grass-selective herbicides may be applied to larger areas to eliminate persistent weedy grasses. Similarly, the



CONSERVATION STEWARDSHIP PROGRAM

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). Mowing height must not be too short so as to compromise the planting. A general guideline is 8 to 10 inches.

B. Operation and maintenance

1. Management and/or maintenance activities such as mowing, haying, burning, or grazing must be conducted outside of the growing season or bloom period. Maintenance should be done on less than 1/3 of the acreage during any given year, except during the first year post-planting as described in A 9 above.
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:
 - i. Create insecticide free buffers in the first 25 feet of crop area,
 - ii. Use application methods that minimize drift to the adjacent habitat,
 - iii. 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 that is least likely to inadvertently impact pollinators. For example, spot-spraying with herbicide or physical removal of undesirable plants.
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:

- 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.
- During implementation, purchase specified seed mix or plant materials that meets pollinator-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 Wildlife Habitat Planting (Code 420).
- 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.
- After implementation, take and provide for review photographs as documentation of pollinator habitat area condition during blooming periods.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Prior to implementation, discuss with participant the proposed habitat areas to verify they are in locations suitable for the enhancement.
- Prior to implementation, provide participant with suitable plant lists.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Wildlife Habitat Planting (Code 420).
- Prior to implementation, use WHEG to document 0.5 five planning criteria for the terrestrial habitat resource concern. The WHEG does not need to be a pollinator WHEG.
- 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)
- After implementation, verify successful establishment (per planting criteria above) by review of documentation and photographs.

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



Indiana Supplement to Conservation Enhancement

CONSERVATION STEWARDSHIP PROGRAM

E420A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E420A the following criteria apply in Indiana:
- **This enhancement is intended to enhance an existing habitat.**
 - A Wildlife Habitat Evaluation Guide (WHEG) must be used to show that the benchmark Primary Habitat Suitability Index Score is at least 0.5. Use the existing Primary Habitat Suitability Index (general or species specific) from the appropriate land use WHEG to determine this score.
 - If there is currently no habitat, or the existing condition is fair or poor, the participant may schedule CPS 420 in addition to E420. The planned Primary Habitat Suitability Index WHEG score for CPS 420 should bring the WHEG score to a minimum of a 0.5.
 - A WHEG rating specific to pollinator and beneficial insect habitat must be used to show that, post implementation, this enhancement is expected to result in the establishment of suitable pollinator habitat or will improve the habitat value of existing pollinator habitat. The planned Primary Habitat Suitability Index Score for Pollinators and Beneficial insects must be greater than or equal to 0.6 and must show a minimum 0.1 increase from the existing benchmark condition.
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool (primary purpose pollinator) will be used when developing seeding mixes for this practice. Mixes generated in the seeding tool, for the specific resource concerns identified, will meet the criteria of this enhancement.
 - To encourage the forb component, it is strongly encouraged to sow the seeding mixture during the dormant season (12/1 to 4/1).
 - Any prepackaged mixes must be approved prior to seeding.

E420A	December 2022
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- Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E420A the following additional documentation requirements apply in Indiana:
 - Participants will be provided a suitable planting list from the Seeding Tool (Wildlife Seeding Calculator for herbaceous plantings, General Calculator for Trees or Shrubs) listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on this National Enhancement

E420A	
E420A	December 2022



CONSERVATION ENHANCEMENT ACTIVITY

E420B

CONSERVATION STEWARDSHIP PROGRAM

Establish monarch butterfly habitat

Conservation Practice 420: Wildlife Habitat Planting

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

RESOURCE CONCERN: Animal

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Seed or plug milkweed (*Asclepias* spp.) and high-value monarch butterfly nectar plants to establish or improve monarch habitat. These areas may include, but are not limited to, field borders, vegetative barriers, contour buffer strips, shelterbelts, hedgerows, windbreaks, conservation cover, and riparian forest and herbaceous buffers.

Criteria

- Habitat areas must be at least 0.5 acres.
- A Wildlife Habitat Evaluation Guide (WHEG), must be used to show that 0.5 planning criteria has been met for the inadequate wildlife habitat resource concern. The WHEG used to meet this criterion does not need to be specific to monarch habitat. (If WHEG score is less than 0.5, consider E327B.)
- A WHEG specific to monarch habitat must be used to show that, post implementation, the Enhancement is expected to result in the establishment of suitable monarch habitat or will improve the habitat value of existing monarch habitat. The following may be used to meet this criterion:



CONSERVATION STEWARDSHIP PROGRAM

- [For circumstances where planning criteria for monarch habitat is currently below 0.5] Post implementation, planning criteria for monarch habitat is equal to or greater than 0.6.
 - OR
 - [For circumstances where planning criteria for monarch habitat is at 0.5 or greater] Post implementation, planning criteria for monarch habitat increases at least 0.1
- Establish and maintain habitat for monarch butterflies as described below:

A. Monarch butterflies

- Habitat will be established and/or maintained using lists of larval host plants and nectar plants suitable for monarch butterfly habitat as the guide. Lists are provided in the NRCS Field Office Technical Guide (FOTG).
- A grass component 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.
- At least 60% of the forb seeds (pure live seed) in the planting mix will be from the monarch butterfly planting list (FOTG). This will ensure that plantings will provide food (nectar and pollen) for adult monarch butterflies. Milkweed seeds are included in meeting the 60% minimum because milkweeds 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 will 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



CONSERVATION STEWARDSHIP PROGRAM

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.

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.
 - Weed treatment and plant establishment will be accomplished according to the state's specifications for NRCS Conservation Practice Standard Wildlife Habitat Planting (Code 420) and other practice standards as appropriate.
 - Successful establishment is when:
 - a. The planting is providing at least 80 percent canopy cover, visually estimated;
 - b. Resultant cover consists of at least 500 milkweed plants per acre (approx. 1 stem per each 100-sq. ft.). A milkweed plant is defined as a single stem emerging from the ground; AND
 - c. two targeted nectar plants per bloom period are available when monarchs are present in the state.
 - Insecticides should not be used in the habitat planting area.
 - Herbicides are allowed 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.
- C.** After a monarch habitat enhancement has been planted, herbicides may be spot-sprayed to remove broad-leaf weeds, or targeted application of grass-selective herbicides may be used in areas dominated by 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). Mowing height must not be too short so as to compromise the planting. A general guideline is 8 to 10 inches.

CONSERVATION STEWARDSHIP PROGRAM

D. 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 shall be regularly inspected for invasive and/or noxious plants or other plants that may compromise the purpose of this enhancement. Undesirable species shall be controlled using Individual Plant Treatment methods, for example, spot-spraying with herbicide or physical removal of individual plants.



CONSERVATION STEWARDSHIP PROGRAM

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 Wildlife Habitat Planting (Code 420).
- 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 during blooming periods.

NRCS will:

- Prior to implementation, use WHEG to document 0.5 five planning criteria for the terrestrial habitat resource concern. The WHEG does not need to be a monarch WHEG.
- Prior to implementation, assess habitat condition using a monarch 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 Wildlife Habitat Planting (Code 420).
- 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).

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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E420B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E420B the following criteria apply in Indiana:
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool (primary purpose monarch) will be used when developing seeding mixes for this practice. Mixes generated in the seeding tool, for the specific resource concerns identified, will meet the criteria of this enhancement. Use the Seed Mix Checks to verify the planned mixes will meet the expectations of the enhancement.
 - To encourage the forb component, it is strongly encouraged to sow the seeding mixture during the dormant season (12/1 to 4/1).
 - Any prepackaged mixes must be approved prior to seeding.
 - Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E420B the following additional documentation requirements apply in Indiana:
 - Participants will be provided a suitable planting list from the Seeding Tool (Wildlife Seeding Calculator for herbaceous plantings) listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)



CONSERVATION STEWARDSHIP PROGRAM

- Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice.
- Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on this National Enhancement

- A Wildlife Habitat Evaluation Guide (WHEG), must be used to show that 0.5 planning criteria has been met for the inadequate wildlife habitat resource concern. Use the existing Primary Habitat Suitability Index to determine this score.
 - This enhancement is intended to enhance existing habitat.
 - If there is currently no habitat, or the existing condition is poor, the participant may schedule CPS 420 in addition to E420. The planned Primary Habitat Suitability Index WHEG score for CPS 420 should bring the WHEG score to a minimum of a 0.5.
- Monarch Wildlife Habitat Evaluation Guide (WHEG): Midwest Edition 2.0 will be used to determine the final planned WHEG value after the enhancement or combination of conservation practices and enhancements are applied. The Indiana Wildlife Seeding Calculator incorporates this data into the design.



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E447A

Advanced Tailwater Recovery

Conservation Practice 447: Irrigation System, Tailwater Recovery

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

RESOURCE CONCERN: Water

PRACTICE LIFE SPAN: 1 year

Enhancement Description

This enhancement is for a recovery system that capture 100% of excess irrigation and drainage runoff water from the contiguous land where the activity is implemented. Runoff water is conveyed through properly designed recovery ditches to a storage structure. Each recovery ditch and storage structure have adequate capacity to store excess irrigation water and reasonable runoff water. The system is designed to incorporate the collected water back into the delivery system so that excess water is reused. The system is fully automated to operate the recovery pumps, valves, and collection system. Key elements in the system are sensors that can evaluate data and operate devices through the system in opening/closing or on /off based on scientifically determined parameters.

Criteria

General

- All fields where the activity is implemented are contiguous and have a properly designed recovery system.
- Topography of the contiguous fields may require multiple independent recovery systems.
- Prevented field erosion by utilization of properly designed, installed, and maintained recovery collection structures.
- Install freeboard gauges in recovery storage structures.
- Design all structures with overflow protection to prevent flooding of crops or neighboring lands .



CONSERVATION STEWARDSHIP PROGRAM

- Measure the volume of irrigation water applied to each field by using a permanently installed flowmeter. . Include all irrigation sources for the field in the measurement.
- Tailwater recovery pits will have a permanent water level sensor with data recording to monitor the tailwater captured throughout the irrigation season.

Additional Criteria of recovery collection structures

- Recovery collection structures will be properly designed and installed according to NRCS CPS 410 Grade Stabilization Structure or CPS 587 Structure for Water Control

Additional Criteria of overflow structures

- Structures will be designed according to NRCS Conservation Practice Standard 587 Structure for Water Control.
- Structures will be constructed of UV protected material or have a protective coating applied.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

Prior to implementation

- An Irrigation Water Management plan will be written and submitted to NRCS for approval.
- A system map will be created that identifies each component of the tailwater recovery system.

During installation or implementation

- The Irrigation Water Management plan will be followed.
- Routinely check the system for any issues resulting from animal activities such as beavers clogging the structures .
- Evaluate the functionality of each component throughout the system to determine if any changes, corrections, or repairs need to be made.
- Record irrigation data such as location, dates, duration, and flow rate of water applied to the field and amount recycled.

After implementation

- Provide documentation of the following to NRCS for certification
 - Water use during the irrigation season.
 - Water recycled during the irrigation season.
 - Changes, corrections, or repairs made to the system to improve functionality.

NRCS will:

Prior to implementation

- Provide and explain NRCS Conservation Practice Standard Irrigation System, Tailwater Recovery (Code 447) and Irrigation Water Management (Code 449) as it relates to implementing this enhancement
- Provide additional assistance to the participant as requested
- Review and approve all recovery collection structures



CONSERVATION STEWARDSHIP PROGRAM

After Implementation

- Verify installation of all irrigation water management equipment and collected records from the season

NRCS Documentation Review:

I have reviewed participant’s documentation and have determined that participant has implemented the enhancement and meets all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E449A

CONSERVATION STEWARDSHIP PROGRAM

Complete pumping plant evaluation for water savings

CONSERVATION PRACTICE: 449 - Irrigation Water Management

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 years

Enhancement Description

Evaluation of all pumping plants to determine the potential to rehabilitate/replace/reconfigure pump performance to improve water delivery efficiency 10% or more.

Criteria

- Pump test evaluation will include all irrigation pumps on fields where the 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 irrigation.
 - 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.
- The 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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.
- The 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.
- Arrange for pump test evaluations of all irrigation pumps on fields where activity is implemented.
- Acquire an irrigation water management plan meeting NRCS Conservation Practice Standard Irrigation Water Management (Code 449) requirements.



CONSERVATION STEWARDSHIP PROGRAM

During implementation

- Follow the irrigation water management plan and keep records as required by the plan.
- 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 water use based on before and after conditions.

NRCS will:

Prior to implementation

- Provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) to participant 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.

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

E449C

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: 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.

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.
- Documentation of the scientific method used for scheduling the timing and amount of irrigation applications.
- Irrigation water management plan explains:

E449C - Advanced Automated IWM – Year 2-5, soil moisture monitoring	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.
 - 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

E449C - Advanced Automated IWM – Year 2-5, soil moisture monitoring	August 2019	Page 3
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CONSERVATION ENHANCEMENT ACTIVITY

E449D

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: Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Installing and monitoring soil moisture or water leveling equipment for advanced automated irrigation water management

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 an alternative.
- 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

E449D - Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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.
- If a weather station is installed, install 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),
 - o High and low temperature
 - o Precipitation
 - o Humidity
 - o Wind speed and duration
 - o 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):
 - o 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.
 - o Methods used to measure or determine the flow rate or volume of the irrigation applications.
 - 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 The Irrigation water management plan explains;

E449D - Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

- 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

E449D - Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	August 2019	Page 3
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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:
 - Irrigation water management plan and records kept (i.e. , date, duration, and flow rate of all irrigation operations, rainfall, evapotranspiration, and soil moisture or water level data)
 - Changes made to address distribution uniformity deficiencies
 - Documentation of equipment installed (i.e. weather station, sensors, data logger, etc.) to NRCS
 - If a suscription service is used, provide location of equipment, date, duration, and flow rate of all irrigation operations, rainfall, evapotranspiration, and soil moisture or water level data.

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.

E449D - Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	August 2019	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- 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.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E449F

CONSERVATION STEWARDSHIP PROGRAM

Intermediate IWM— Year 1, Equipment with 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 involves monitoring soil moisture or water levels within a surface irrigated field for intermediate irrigation water management by utilizing technological equipment to gather field specific data concerning weather, soil moisture or water levels throughout the irrigation season. The equipment is installed and utilized to log data and retrieve the data periodically throughout the season, so irrigation decisions can be made based on scientific data. Maximum time between data retrievals is weekly.

Monitoring will be for the entire irrigation season and data gathered will be used to make sound decisions on irrigation water use.

Criteria

General

- Equipment may include: soil moisture sensor with data collection systems; weather stations that collect solar radiation, wind speed and direction, rainfall,

E449F - Intermediate IWM – Year 1, Equipment and soil moisture or water level monitoring	March 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

temperature; water level sensor with data collection system; permanent flowmeter

- Data to be monitored includes: irrigation water applied, 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 with data collection systems that can continuously record data throughout the irrigation season.
- 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 sensor/water level sensor locations (if used) and soils.
 - Method used to measure or determine the flow rate or volume of the irrigation water applications
 - Measurement records showing the amount of water used to irrigate as it comes on to the farm and goes into each field
 - Documentation of the scientific method used to schedule the timing and amount of irrigation application
 - Irrigation water management plan explaining:
 - How irrigation 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 ensure uniform irrigation
 - Information on how to recognize irrigation induced erosion and how to mitigate it
 - Indicate how data from the sensor location 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

E449F - Intermediate IWM – Year 1, Equipment and soil moisture or water level monitoring	March 2020	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

- Recordkeeping documents for the irrigator to use during the operation and management

Additional Criteria of soil moisture devices

- Installation of each soil moisture set will include the ability to collect data at a minimum of 2 approved depths based on crop and soil characteristics of the region
- Number of soil moisture sets will be installed based on the irrigation water management plan designed per water source using the following criteria: field topography, croprotection and the soils throughout the field.

Additional Criteria of flow measurement devices

- Permanent flow meters will be installed at all wells/reliefs that are included in the approved IWM plan

Additional Criteria of water level devices

- Sensor is installed in a basin field with a data logger with the ability to capture an image of the movement of the gauge. Images are captured at a minimum of twice a day

Additional Criteria of weather stations

- Weather station is installed in a central location as defined by the irrigation water management plan, but no more than 2 miles separation

- Weather stations will record each of the following at a minimum of four times per hour:

- High and low temperature
- Precipitation
- Humidity
- Wind speed and duration and direction
- Solar radiation

CONSERVATION STEWARDSHIP PROGRAM

E449F - Intermediate IWM – Year 1, Equipment and soil moisture or water level monitoring	March 2020	Page 3
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Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

Prior to implementation

- Acquire an irrigation water management plan meeting NRCS Conservation Practice Irrigation Water Management (Code 449) requirements
- Acquire NRCS approval of all irrigation water management devices that will be utilized for the plan implementation

During installation or implementation

- Ensure each irrigation water management device is installed to manufacturer recommendations
- Record irrigation data such as location, date, duration, and flow rate of all irrigation operations, rainfall, evapotranspiration, and soil moisture or water level data
- Monitor the devices during the growing season to determine timing and amounts of water to apply based on soil moisture/water level sensor, field checks and weather data

After implementation

- Make the following items available for review by NRCS to verify implementation of the enhancement:
 - Irrigation water management plan is followed, and records kept
 - Changes made to address distribution uniformity deficiencies
 - Utilization documentation of any sensor used throughout the growing season as well as certification of their proper installation

NRCS will:

Prior to implementation

- Provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) as it relates to implementing this enhancement

E449F - Intermediate IWM – Year 1, Equipment and soil moisture or water level monitoring	March 2020	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- Provide additional assistance to the participant as requested
- Review and approve producer’s selected equipment After Implementation
- Verify installation of all irrigation water management equipment
- 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 ENHANCEMENT ACTIVITY

E449G

CONSERVATION STEWARDSHIP PROGRAM

Intermediate IWM— Years 2-5, 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

Intermediate irrigation water management involves monitoring soil moisture or water levels within an irrigated field by utilizing technological equipment to gather field specific data concerning weather, soil moisture or water levels throughout the irrigation season. The equipment was bought in year one and is utilized to log data through the season to be retrieved periodically so irrigation decisions can be made based on scientific data. Maximum time between data retrieval is weekly.

Monitoring will be for the entire irrigation season and data gathered will be used to make sound decisions on irrigation water use.

Criteria

General

- Equipment may include: soil moisture sensor with data collection systems; weather stations that collect solar radiation, wind speed and direction, rainfall, temperature; water level sensor with data collection system

E449G - Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	March 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Data to be monitored includes: irrigation water applied, crop water use, status of heat and/or frost conditions to permit the producer to make informed irrigation decisions.
- Irrigation water management plan from year one is followed in accordance to the NRCS Conservation Standard Practice Irrigation Water Management (Code 449):
 - An irrigation system layout map showing the main pipeline(s), irrigated area, soil moisture sensor/water level sensor locations (if used) and soils.
 - Method used to measure or determine the flow rate or volume of the irrigation water applications
 - Measurement records showing the amount of water used to irrigate as it comes on to the farm and goes into each field
 - Documentation of the scientific method used to schedule the timing and amount of irrigation application
 - Irrigation water management plan explaining:
 - How irrigation 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 ensure uniform irrigation
 - Information on how to recognize irrigation induced erosion and how to mitigate it
 - Indicate how data from the sensor location 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 the operation and management

Additional Criteria of soil moisture devices

- Each year re-install the soil moisture set to collect data at a minimum of 2 approved

E449G - Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	March 2020	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

depths based on crop and soil characteristics of the region

- Number of soil moisture sets will be installed based on the irrigation water management plan designed per water source using the following criteria: field topography, crop rotation and the soils throughout the field.

Additional Criteria of water level devices

- Re-install sensor/gage each year in a basin field with a data logger with the ability to capture an image of the movement of the gauge. Images are captured at a minimum of twice a day.

E449G - Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	March 2020	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

Prior to implementation

- Review the irrigation water management plan to make any necessary adjustments from the previous year.
- Ensure the irrigation water management plan continues to meet the NRCS Conservation Practice Irrigation Water Management (Code 449) requirements.

During installation or implementation

- Ensure each irrigation water management device is re-installed to manufacturer recommendations
- Record irrigation data such as location, date, duration, and flow rate of all irrigation operations, rainfall, evapotranspiration, and soil moisture or water level data
- Monitor the devices during the growing season to determine timing and amounts of water to apply based on soil moisture/water level sensor, field checks and weather data

After implementation

- Make the following items available for review by NRCS to verify implementation of the enhancement:
 - Irrigation water management plan is followed, and records kept
 - Changes made to address distribution uniformity deficiencies
 - Utilization documentation of any sensor used throughout the growing season as well as certification of their proper installation

NRCS will:

Prior to implementation

- Provide and explain NRCS Conservation Practice Standard Irrigation Water

E449G - Advanced Automated IWM – Year 1, Equipment and soil moisture or water level monitoring	March 2020	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

Management (Code 449) as it relates to implementing this enhancement

- Provide additional assistance to the participant as requested After Implementation
- Verify re-installation of all irrigation water management equipment each year
- Verify implementation of the irrigation water management plan by:
 - Reviewing records kept during each year of 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

E449H

CONSERVATION STEWARDSHIP PROGRAM

Intermediate IWM— Years 2 -5, using soil moisture or water level monitoring

Conservation Practice 449: Irrigation Water Management

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Monitoring soil moisture or water levels within an irrigated field for implementing an intermediate irrigation water management plan using soil moisture data to facilitate management decisions.

Criteria

- Equipment previously installed (through preceding enhancement) must include soil moisture sensors with data collection systems; weather stations that collect solar radiation, wind speed and direction, rainfall, temperature; water level sensor with data collection system; and permanent flowmeter.
- Monitoring of the following items required:
 - Irrigation water applied
 - Crop water use
 - Status of heat and/or frost conditions to permit the producer to make informed irrigation decisions

E449H - Intermediate IWM – Year 2 - 5, Soil moisture or Water level monitoring	May 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Perform regular maintenance and monitoring of equipment with data collection systems that continuously record data throughout the irrigation season.
- Follow an irrigation water management plan which 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 sensor/water level sensor locations (if used), and soils.
 - Method used to measure or determine the flow rate or volume of the irrigation water applications.
 - Measurement records showing the amount of water used to irrigate as it comes on to the farm and goes into each field.
 - Documentation of the scientific method used to schedule the timing and amount of irrigation application.
 - Irrigation water management plan explaining:
 - How irrigation 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 ensure uniform irrigation.
 - Information on how to recognize irrigation induced erosion and how to mitigate it.
 - Indicate how data from the sensor location and depths will be considered to make field-wide irrigation decisions.



CONSERVATION STEWARDSHIP PROGRAM

- Water application scheduling based on soil moisture or water level monitoring and/or evapotranspiration monitoring from the weather station.
- Record keeping documents for the irrigator to use during the operation and management.

Additional Criteria of Soil Moisture Devices

- Soil moisture sensors collect data at a minimum of 2 approved depths based on crop and soil characteristics of the region.
- Number of soil moisture data sets will be based on the irrigation water management plan designed per water source using the following criteria: field topography, crop rotation and the soils throughout the field.

Additional Criteria of Flow Measurement Devices

- Permanent flow meters data collected at all wells/reliefs that are included in the approved IWM plan.

Additional Criteria of Water Level Devices

- Data from sensors installed in a basin field from data logger with the ability to capture an image of the movement of the gauge. Images are captured at a minimum of twice a day.

Additional Criteria of Weather Stations

- Weather station data from a central location as defined by the irrigation water management plan
- Weather station record includes each of the following at a minimum of four times per hour:
 - High and low temperature
 - Precipitation



- Humidity
- Wind speed and duration and direction
- Solar radiation.

CONSERVATION STEWARDSHIP PROGRAM





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.
- During implementation, ensure each irrigation water management device functions as intended.
- 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.
- During implementation, monitor the devices during the growing season to determine timing and amounts of water to apply based on soil moisture/water level sensor, field checks and weather data.
- After implementation, make the following documentation available for review by NRCS to verify implementation of the enhancement:
 - Irrigation water management plan and associated records.
 - Changes made to address distribution uniformity deficiencies.
 - Documentation demonstrating utilization of any sensor used throughout the growing season.

NRCS will:

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) requirements as it relates to implementing this enhancement, including applicable state specific job sheets.
- Prior to implementation, assist with data interpretations needed for management decision making.
- Prior to implementation, provide additional assistance to the participant as requested.



- After implementation, verify implementation of the irrigation water management plan by reviewing records kept during enhancement implementation.

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

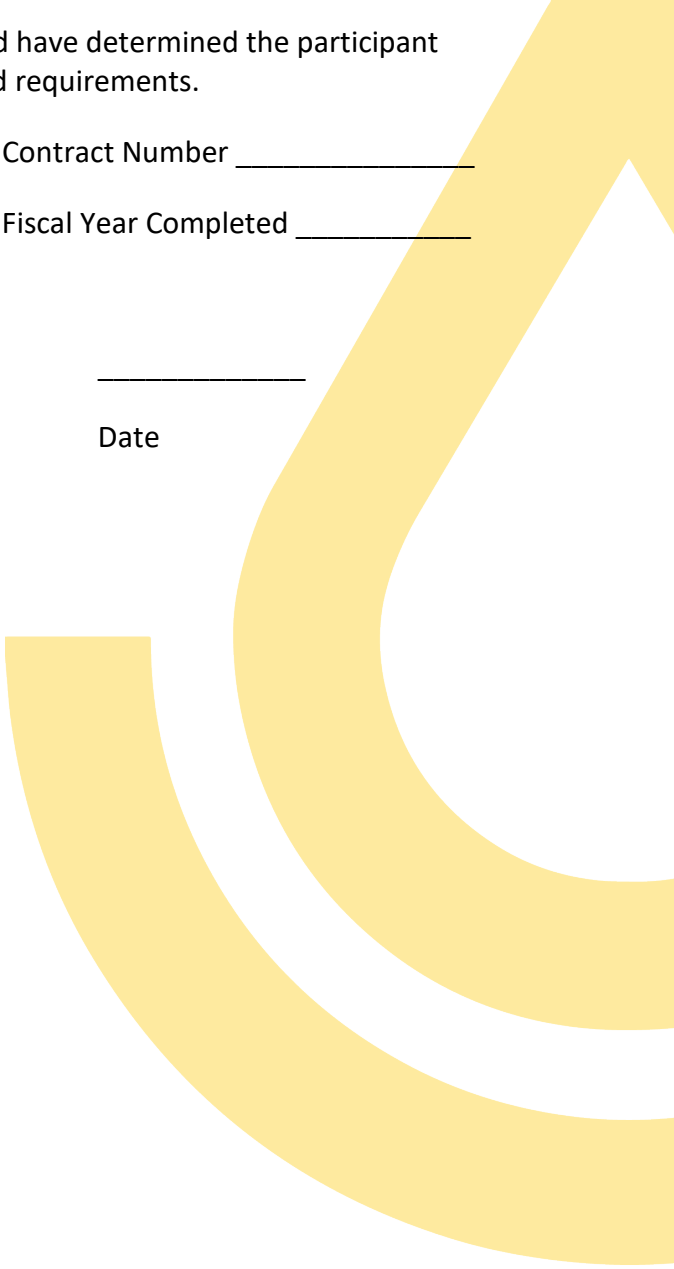
I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E449I

IWM - Year 1, Retrofit Equipment with Speed Control on Sprinkler Irrigation System

Conservation Practice 449: Irrigation Water Management

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

RESOURCE CONCERN: Water

PRACTICE LIFE SPAN: 1 year

Enhancement Description

This enhancement consists of retrofitting an existing sprinkler irrigation system to integrate variable rate irrigation (VRI) speed control where the technology is not present. The added functionality of VRI speed control equipment allows for enhanced water application precision, efficiency, and uniformity along the length of the sprinkler irrigation system by varying the irrigation system speed within the irrigation pass. Renovation of the existing sprinkler irrigation system utilizing this enhancement includes the installation of an upgraded control panel capable of speed control programming and global positioning system (GPS) technology capable of providing real-time field position. Utilization of the VRI speed control and GPS equipment will be for the entire irrigation season and be based on spatially identified parameters such as variations in past yield data, soils, crop growth, topography, or computerized irrigation scheduling recommendations. This scenario requires that the existing sprinkler irrigation system meets Conservation Practice Standard (CPS) 442 uniformity and efficiency requirements. System equipment is installed in year 1 with this scenario and scenario E449G or E449C is used in years 2-5.

Criteria

- Documentation that ensures the speed control devices are compatible with the existing sprinkler irrigation system.
- Detailed drawings on how the speed control and GPS devices will connect to the existing sprinkler irrigation system, operate safely, and be protected.
- Irrigation water management (IWM) plan that follows the NRCS Conservation Practice Standard Irrigation Water Management (CPS449).
- The installation includes the purchase and installation of speed control and GPS devices. Components necessary for retrofit depend on the type of devices are installed and sprinkler irrigation system being renovated, but should consist of speed control and GPS devices as indicated below:



- Speed control unit with percentage timer setting capable of varying the irrigation system speed within the irrigation pass. Sprinkler irrigation tower speed is controlled by contactor coil voltage sent out by the percentage timer within the control panel.
- Satellite-guided GPS technology mounted on the sprinkler irrigation system provides real-time end tower location, speed, and direction information to the control panel.

CONSERVATION STEWARDSHIP PROGRAM





Documentation and Implementation Requirements

Participant will:

Prior to implementation

- Acquire an IWM plan meeting NRCS CPS Irrigation Water Management (Code 449) requirements.
- Develop a map delineating the location of the existing sprinkler irrigation system, speed control unit, satellite-based technology, and the fields they serve.
- Acquire NRCS approval of selected of selected speed control unit and satellite-based technology.

During implementation

- Ensure installation meets manufacturers recommendations.
- Provide documentation ensuring that the speed control device, GPS device, and supporting appurtenances allow the sprinkler irrigation system to operate safely and in the range of design operating conditions.
- Provide documentation of the protective structures meeting the requirements of the speed control and GPS devices. Ensure that the protective devices meet NRCS standards.
- Record each irrigation event, including the amount or depth of water applied, duration of the event, date of application, and any other requirements of the approved IWM Plan.

After implementation

- Copy of the record of each irrigation event, including the amount or depth of water applied, duration of the event, date of application, and any other requirements of the approved IWM plan.

NRCS will:

Prior to implementation

- Provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) as it relates to implementing this enhancement.
- Provide and explain NRCS Conservation Practice Standard Sprinkler System (Code442) as it relates to implementing this enhancement.
- Provided additional assistance to the participant as requested.

**CONSERVATION
STEWARDSHIP
PROGRAM**



- Review and approve producer’s selected equipment

During Implementation

- Provide additional assistance to the participant as requested.

After Implementation

- Verify installation of the speed control devices, GPS devices, and supporting appurtenances are in accordance with manufacturer's specification.
- Verify that speed control and GPS devices are compatible with the existing sprinkler irrigation system.
- Verify implementation of the approved IWM 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 ENHANCEMENT ACTIVITY

E449J

Intermediate IWM – 20% Reduced Water usage

Conservation Practice 449: Irrigation Water Management

APPLICABLE LAND USE: Crop (Annual and Mixed), Crop (Perennial)

RESOURCE CONCERN ADDRESSED: Insufficient Water

ENHANCEMENT LIFE SPAN: 1 Years

Enhancement Description

Intermediate irrigation water management involves monitoring soil moisture or water levels within an irrigated field by utilizing technological equipment to gather field specific data concerning weather, soil moisture or water levels throughout the irrigation season. The equipment will be utilized to log data through the season to be retrieved periodically so irrigation decisions can be made based on scientific data. Maximum time between data retrieval is weekly.

Monitoring will be for the entire irrigation season and data gathered will be used to make sound decisions on irrigation water use.

Criteria

- Equipment may include: soil moisture sensor with data collection systems; weather stations that collect solar radiation, wind speed and direction, rainfall, temperature; water level sensor with data collection system
- Irrigation water management plan from year one is followed in accordance to the NRCS Conservation Practice Standard Irrigation Water Management (Code 449):
 - An irrigation system layout map showing the main pipeline(s), irrigated area, soil moisture sensor/water level sensor locations (if used) and soils.

E449J – Intermediate IWM – 20% Reduced Water usage	April 2021	Page 1
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- Method used to measure or determine the flow rate or volume of the irrigation water applications
- Measurement records showing the amount of water used to irrigate as it enters the farm and goes into each field
- Documentation of the scientific method used to schedule the timing and amount of irrigation application
- Irrigation water management plan explaining:
 - How irrigation 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 ensure uniform irrigation
 - Information on how to recognize irrigation induced erosion and how to mitigate it
 - Indicate how data from the sensor location 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 the operation and management
- Irrigation usage will be reduced by at least 20% from previous years use and maintained at that level through the remainder of the contract.



Documentation and Implementation Requirements

Participant will:

Prior to implementation

- Review the irrigation water management plan to make any necessary adjustments from the previous year.
- Ensure the irrigation water management plan continues to meet the NRCS Conservation Practice Irrigation Water Management (Code 449) requirements.

During installation or 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
- Monitor the devices during the growing season to determine timing and amounts of water to apply based on soil moisture/water level sensor, field checks and weather data

After implementation

- Make the following items available for review by NRCS to verify implementation of the enhancement:
 - Irrigation water management plan is followed, and records kept
 - Changes made to address distribution uniformity deficiencies
 - Utilization documentation of any sensor used throughout the growing season as well as certification of their proper installation

NRCS will:

- Provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code 449) as it relates to implementing this enhancement
- Provide additional assistance to the participant as requested After Implementation
- Verify re-installation of all irrigation water management equipment each year
- Verify implementation of the irrigation water management plan by:
 - Reviewing records kept during each year of 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

E472A

CONSERVATION STEWARDSHIP PROGRAM

Manage livestock access to waterbodies to reduce nutrients or pathogens to surface water

Conservation Practice 472: Access Control

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Installation of structures and implementation of grazing management actions that restrict livestock access to waterbodies in order to reduce nutrient loading or reduce the introduction of pathogens from manure, bio-solids, or compost to surface waters.

Criteria

- Manage livestock access to provide positive benefits to surface water quality, resulting in better manure distribution and reduction of nutrient input into surface waters like streams, ditches and other waterbodies.
- 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.
- 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.

E472A – Manage livestock access to waterbodies to reduce nutrients or pathogens to surface water	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 or exclusion from the target water course or waterbody. Activities may involve temporary or permanent livestock exclusion.
- Placement, location, dimensions, materials (e.g., gates), frequency of use (e.g., continuous), and frequency of monitoring shall be described for each activity,.





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, provide a grazing plan that includes a written narrative describing planned season of livestock grazing use.
- 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
 - Pasture/herd in/out records
 - Map showing locations of installed structures

NRCS will:

- As needed, provide additional technical assistance to the participant as requested.
- After implementation, complete forage utilization job sheet for NRCS Conservation Practice Standard Prescribed Grazing (Code 528).
- After implementation, verify implementation of the written grazing plan by reviewing plan and pasture/herd in/out records kept during enhancement implementation.



CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

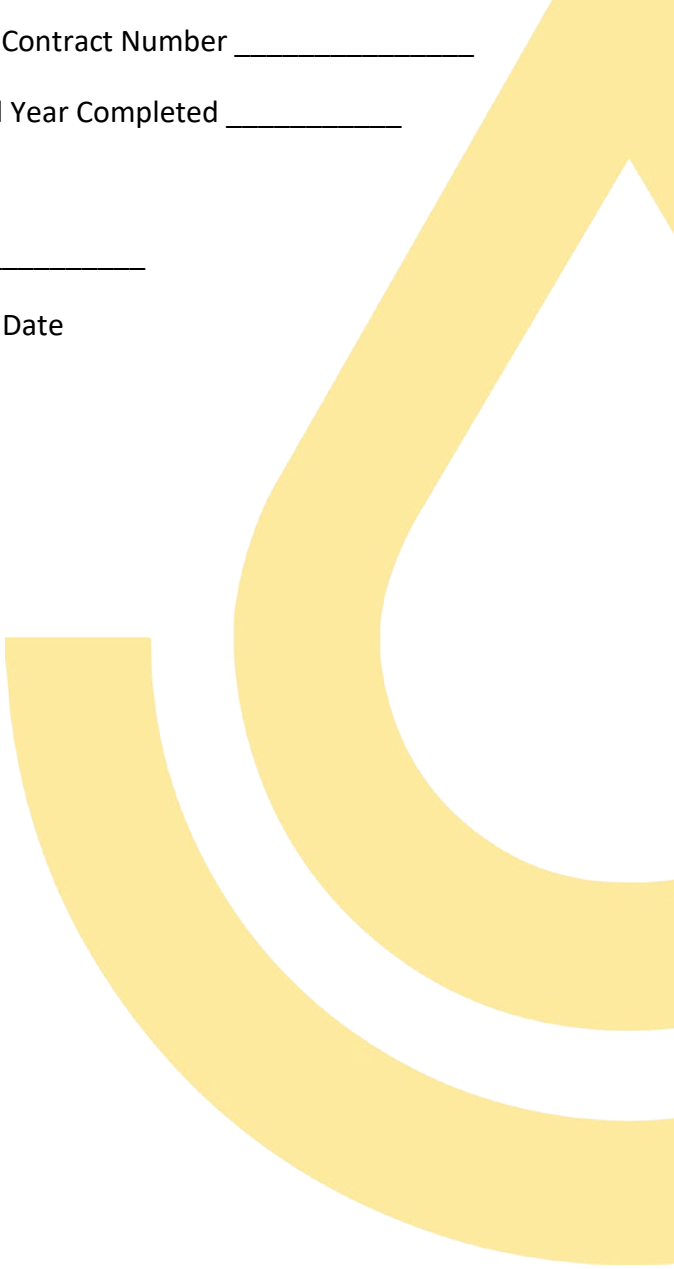
I have reviewed all required participant documentation and determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E472A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E472A the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard for all grazed fields adjacent to waterbodies that are enrolled. Plants and plant residue will be planned and managed to maintain > 80% cover at all times.
 - No mechanical forage removal on enrolled acreage to reduce carbon removal off site and maintain or increase root biomass.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Riparian areas will not be grazed under wet conditions.
 - Riparian areas will be fenced to control and manage livestock present.
 - Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table **when grazed**: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.



CONSERVATION STEWARDSHIP PROGRAM

Forage Type	Stop Grazing Height (inches)	Overwintering Height ^{1/}
Introduced Grasses and Legumes	6	6
Native Grasses, Legumes and Forbs	6	12

^{1/}

Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E472A the following additional documentation requirements apply in Indiana:
 - Indiana Job-sheet "Grazing Sensitive Areas."
 - A map showing access controlled area.

Notes and comments on this National Enhancement:

- In lieu of a forage utilization job sheet, document in the assistance notes that "stop grazing" heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.
- Similar to E472118Z and E472122Z in old enhancements



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E484A

Mulching to improve soil health

Conservation Practice 484: Mulching

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

ENHANCEMENT 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 four 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- The crop rotation includes at least four crops and/or cover crops grown in a sequence.
- An evaluation of the system using the current approved 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.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- 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 four 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)

- 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.

Field	Crop	Mulching Material	Planned Rate of application (pounds/acre)	Planned Application Date

- 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation, provide NRCS with the applied mulching information.

Field	Crop	Mulching Material	Actual Rate of application (pounds/acre)	Actual Application Date

- If changes were made to crop rotation or tillage operation(s) after implementation, complete the tables above to document the changes.

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 four crops and/or cover crops grown in a sequence.
- Prior to implementation, use information provided from the participant to calculate the Management 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.
- If changes were made from the planned system after implementation, use information provided from the participant to calculate Management 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 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

E484B

CONSERVATION STEWARDSHIP PROGRAM

Reduce particulate matter emissions by using orchard or vineyard generated woody material as mulch

Conservation Practice: 484 Mulching

APPLICABLE LAND USE: Crop (perennial)

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Reduce particulate matter emissions by using orchard- or vineyard-generated woody materials as mulch. At least 90% of all woody materials are to be used as mulch on the operation. *An exception may be made when it is determined that infected material must be burned to preserve crop health.*

Criteria

- Non-infected, woody material will not be burned, but instead will be chipped and used as mulch. Infected material may be burned to preserve crop health, but 90% of all woody material must be mulched in order to count this enhancement as met.
- When mulching with wood products such as wood chips, bark, shavings, or other wood materials, apply a minimum two-inch thickness of particles that will remain in place during heavy rainfall or strong wind events, or both, if applicable.
- Mulching plan must be developed. Mulched material must meet guidelines laid out in a mulching plan for size of chips and thickness of cover applied.
- Mulch does not have to be applied to the immediate source area (orchard or vineyard), but instead may be applied anywhere needed on the operation that is designated in the mulching plan (e.g., other areas of farmstead or cropland).
- Avoid excessively thick or tightly packed mulches that can result in soggy, anaerobic conditions at the soil surface during wet weather or prevent rainfall or



overhead irrigation from reaching the soil during times of moisture deficit.

- Keep mulch three to six inches away from plant stems and crowns to prevent disease and pest problems. Additional weed control may be needed around the plant base area.
- For all organic or transitioning-to-organic operations, follow all National Organic Program (NOP) rules.



Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide NRCS with information for review about current and proposed management of orchard or vineyard generated woody materials.

Field	Crop	Acres	Current Management	Proposed Management

- Prior to implementation, provide NRCS with the proposed mulching plan for development. NRCS can provide assistance, as needed, in plan development. At a minimum, the plan must include:
 - o Purpose of mulching
 - o Type of mulch material
 - o Approximate amount of mulch material to be utilized
 - o Size of mulch pieces (size range or maximum size of pieces)
 - o Placement timing (planned and actual)
 - o Depth of mulch cover
 - o Any required site preparation
 - o Operation and maintenance information
 - o Map(s) of area where material is to be applied

Field	Crop/Location	Mulching Material	Planned Mulching Depth or Rate of Application (inches or pounds/acre)	Planned Application Date



- During implementation, notify NRCS of any planned changes in the mulching plan to verify changes meet the enhancement criteria.
- 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.
- During implementation, take photos of area mulched that document the average size of mulched material and depth of layer applied.
- After implementation, provide NRCS with the applied mulching information.

Field	Crop	Mulching Material	Actual Mulching Depth or Rate of Application (inches or pounds/acre)	Actual Application Date

- After implementation, provide mulching plan and photos for review of the area(s) mulched to document the average size of mulched material and depth of layer applied and to verify the planned system meets the enhancement criteria.

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, review current and proposed management of orchard- or vineyard-generated woody materials. *Plan/contract the actual acres of the crop producing the woody materials to be managed.*
- Prior to implementation, verify that the mulching plan meets all criteria of the enhancement.
- During implementation, evaluate any planned changes in the mulching plan to ensure enhancement criteria are met.
- If changes were made after implementation, use information provided from the participant to verify the applied system meets the enhancement criteria.



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

E484B - Reduce particulate matter emissions by using orchard or vineyard generated woody material as mulch		
August 2019		Page 5



CONSERVATION ENHANCEMENT ACTIVITY

E484C

CONSERVATION STEWARDSHIP PROGRAM

Mulching with natural materials in specialty crops for weed control

Conservation Practice 484: Mulching

APPLICABLE LAND USE: Crop (annual & mixed), Crop (perennial)

RESOURCE CONCERN ADDRESSED: Plants

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Application of straw mulch or other state-approved natural material (such as wood chips, compost, green chop, dry hay, or sawdust) for weed control in specialty crops.

Criteria

Use mulch of sufficient ground cover, thickness, and texture to provide habitat for ground beetles, spiders, and other predators of weed seeds and crop pests. Mulch thickness will be determined by the size of the plant being mulched. Thickness of the mulch shall be adequate to prevent emergence of targeted weeds, but no less than four inches deep for dry mulches.

Grass-based green chop should be applied no greater than three inches deep as it will compact and rot. Add additional layers of green chop as decomposition occurs to maintain weed control. Do not use green chop from areas recently treated with herbicides.

Mulches shall be kept a minimum of three inches away from the stems of plants where disease is likely to occur. Depending on the crop, mulch distance may need to be up to six inches away from the stems.

Mulches applied around growing plants or prior to weed seedling development shall have 100% ground cover.

E484C – Mulching with natural materials in specialty crops for weed control	August 2019	Page 1
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Avoid finely divided residues (e.g. sawdust) and those rich in soluble carbohydrates (e.g. fresh chopped corn or other grasses) with a carbon to nitrogen ratio (C:N) greater than 30 that tie up soil nitrogen (N) and necessitate supplemental N applications.

CONSERVATION STEWARDSHIP PROGRAM

Avoid excessively thick or tightly packed mulches that can interfere with the movement of ground beetles and other beneficial organisms and may result in soggy, anaerobic conditions at the soil surface and increase the incidence of crop pests and diseases.





CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide a map showing location of mulch application.
- Prior to implementation, provide NRCS with the planned mulching information. Select crops to be mulched, mulching materials, and rates of application that will provide weed suppression and do not contribute to pest problems.

Field	Crop	Mulching Material	Planned Rate of application (pounds/acre)	Planned Depth of Mulch (inches)	Planned Application Date

- During implementation, notify NRCS of any planned changes in the cropping system, crop management, or mulching to ensure enhancement criteria are met.
- During implementation, take photos of mulch after application, during the growing season, and at harvest.
- 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.
- During implementation, maintain all receipts or other records showing the quantity of mulch used.
- After implementation, provide NRCS with the applied mulching information and any additional information related to the mulching impacts on weed control or crop production.

Field	Crop	Mulching Material	Actual Rate of application (pounds/acre)	Actual Application Date



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, verify mulching materials to be used, depth of mulch, and quantity needed, and document on implementation requirements.
- 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 ensure enhancement criteria are met.
- After implementation, review the applied mulching information and records and recommend adjustments to the mulch specifications for subsequent years based on success of the enhancement.

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



CONSERVATION ENHANCEMENT ACTIVITY

E484D

**CONSERVATION
STEWARDSHIP
PROGRAM**

Lowbush blueberry field mulching for moisture management

Conservation Practice 484: Mulching

APPLICABLE LAND USE: Crop (Annual and Mixed), Crop (Perennial)

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

A full-field application of state-approved natural material such as wood chips for moisture retention to enhance resilience in low bush blueberries (aka wild blueberries). Wood chips hold precipitation in the root zone and prevent moisture loss in well drained soils.

Criteria

- Prepare the field by flail mowing vegetation or other mechanical treatment so wood chips make contact with the ground surface.
- Apply wood chips by broadcasting over the entire field using a manure spreader or other means of uniform distribution.
- Ensure even distribution. Application shall be a minimum of 2 inches. Deeper mulch application may smother plants and affect plant health and productivity.
- Estimated application rate to achieve the appropriate depth of cover is 270 cubic yards per acre.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, inform NRCS:
 - When a source of appropriate mulch has been located,
 - When fields have been prepared,
 - Planned date for work to commence and method of installation, and
 - When actual mulch material arrives on site (either delivered or generated).
- During implementation, notify NRCS of any changes in the mulching plan so NRCS can verify that changes meet the enhancement criteria.
- Photo documentation during implementation to document the average size of mulch material and depth of layer applied.
- Photo documentation after implementation of the mulched fields to verify the location and extent (area covered) of the practice implementation.
- Provide invoices, trucking slips, or other documentation of actual amount of material applied to field.

Tract	Field/ Location	Acres	Mulching Material	Total Cubic Yards Needed	Planned Application Date



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- During implementation, evaluate any planned changes in the mulching plan to ensure enhancement criteria are met.
- If changes were made after implementation, use information provided from the participant to verify the applied system meets the enhancement criteria.



NRCS Documentation Review:

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____

Contract Number _____

Practice Certification and Checkout for Mulching

(Use additional sheets if needed)

	Practice Completion Date	Practice Completion Date	Practice Completion Date
Field(s):			
Extent performed (acres):			
Checked by (printed name) and date:			
ESJAA, name, signature, and date:			
Notes:			
NRCS approval signature above indicates that the participant has implemented the enhancement and met all criteria and requirements.			



CONSERVATION ENHANCEMENT ACTIVITY

E511A

CONSERVATION STEWARDSHIP PROGRAM

Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape

Conservation Practice 511: Forage Harvest Management

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

RESOURCE CONCERN: Animals

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 (See State Wildlife Action Plan for species list). 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.
 - 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

E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	July 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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 addition of dry feedstuffs. For optimal dry hay quality, rake hay at 30% to 40% moisture and ted or invert swaths when moisture is above 40%. To preserve forage quality and quantity, bale field-cured hay at 15% to 20% moisture and bale force air-dried hay at 20% to 35% moisture.

- When harvested for ensilage, forage will be chopped to a size appropriate for the type of storage structure used and optimal effective fiber. The selected length of chop 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.
- 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.
- 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.
- Appropriate harvest schedule(s), cover patterns, and minimum plant heights to provide suitable habitat for the desired wildlife species should be implemented and maintained (See State Wildlife Action Plan).
- Time harvests to benefit the desired wildlife species by following state guidelines.
- Producer will apply and maintain at least two of the following management actions specified to improve or protect grassland functions for the state-identified or targeted wildlife species:

E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	July 2020	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

- 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 occur outside of 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 hay acres.
- For all harvest activities that will occur during the nesting/fawning season, the producer will implement at least two of the following actions to flush wildlife during the harvest operation:
 - Attach a flush bar on the mower/harvest equipment.
 - Conduct all harvest/mowing during daylight hours.
 - Begin the harvest pattern either:
 - On one end of the field, working back and forth across the field or
 - In the center of the field, working outward.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Y Prior to implementation, develop a map delineating the fields selected for improving wildlife habitat and enrolled in the enhancement.
- Y Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity while 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. At a minimum, plan must include the following for the forage harvest operations:
 - o Goals, objectives, and specific purpose (improve wildlife habitat values)
 - o At least two of the management actions specified for improving or protecting grassland functions for the state-identified target wildlife species
 - o Implementation of at least two actions to flush wildlife during the harvest operation for all harvest activities that will be conducted during the nesting/fawning season
 - o Forage species to be harvested
 - o Details for each dominant forage species to be harvested:
 - Method of harvest
 - Harvest timing (stage of maturity, optimal harvest moisture content, length of cut)
 - Stubble height to be left
 - Harvest interval (including late harvest, if applicable)
 - Contaminant avoidance recommendations
- Y 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.

E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	July 2020	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- Y Prior to implementation, review the State Wildlife Action Plan as it relates to implementing this enhancement and provide the following information:

Wildlife Species of Concern	
Habitat Requirements, such as plant heights to provide suitable habitat	

- Y During implementation, keep the following documentation for each field:

Field	Forage species harvested	Harvest height (inches)	Harvest Date

- Y During implementation, time harvests to benefit the desired wildlife species.
- Y During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- Y During implementation, notify NRCS of any planned changes to ensure enhancement criteria are met.
- Y After implementation, make documentation and photographs of forage cutting heights available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- Y As needed, provide technical assistance to meet enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

- Y Prior to implementation, verify a map has been developed delineating the fields that will have the enhancement implemented.
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standards Forage Harvest Management (Code 511) and Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement, including applicable state-specific job sheets.
- Y Prior to implementation, provide and explain the State Wildlife Action Plan as it relates to implementing this enhancement.
- Y Prior to implementation, 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.
 - o Develop specifications detailing the wildlife protection measures and habitat improvement.
- Y During implementation, evaluate any planned changes to ensure enhancement criteria are met.
- Y 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 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

E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	July 2020	Page 6
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E511A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E511A the following additional criteria apply in Indiana:
 - Identify Target Species
- Table 1. Critical Life History Periods for Wildlife

Wildlife Species or Groups	Critical Life History Requirement	Critical No Mow/No Harvest Dates (required)	Additional No Mow/No Harvest Nesting/Brood Rearing Season
Whitetail Deer	Fawning	May 15- July 15	
Wild Turkey	Nesting/Brood rearing	May 1- June 30	April 15- August 15
Bobwhite quail	Nesting/Brood rearing	May 15- June 30	April 15 -August 15
Ring-necked pheasant	Nesting/Brood rearing	May 1- June 30	May 1 -September 30
Bobolink	Nesting	May 1 - July 31	April 15 -August 15
Meadowlark	Nesting	May 1 – July 31	April 15 – August 15
Henslow’s sparrow	Nesting	May 15 – July 31	April 15 – August 15
Grassland Birds	Nesting	May 15- July 31	April 15 – August 15
Monarchs*	Migration	August 1- September 30	

*Only applicable in hayfields that have blooming clover, alfalfa or other flowering forage species.

- A harvest plan will be followed according to the IN FOTG 511 – Forage Harvest Management Standard and/or 645 upland Wildlife Habitat Management- Delayed Mowing Implementation Requirements, and harvesting heights will be followed.



CONSERVATION STEWARDSHIP PROGRAM

- Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Overwintering Height ^{1/}	Mechanical Harvest Height
Introduced Grasses and Legumes	6	4
Native Grasses, Legumes and Forbs	12	6

^{1/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E511A the following additional documentation requirements apply in Indiana:
 - Harvested forage records including harvest dates.
 - A map showing deferred or unharvested safe zones.
 - A copy of the IN WHEG for Pasture documenting current and planned conditions
 - Documentation of wildlife species of concern.



CONSERVATION ENHANCEMENT ACTIVITY

E511B

CONSERVATION STEWARDSHIP PROGRAM

Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity

Conservation Practice 511: FORAGE HARVEST MANAGEMENT

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

RESOURCE CONCERN ADDRESSED: Animals

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 a way, and in time frames, to optimize both forage yield/quality and wildlife cover and shelter and/or continuity between otherwise disconnected habitats.

Criteria

- Specify the wildlife species of concern on the state-approved NRCS Wildlife Habitat Evaluation Guide (WHEG). The species of concern must be one that is present for at least part of their life cycle in the geographical/physiographic region.
- The state's WHEG will be completed by a NRCS biologist or partner wildlife biologist. Cover and shelter or continuity habitat requirements for the wildlife species of concern must be specified on the WHEG. The total WHEG score after installation of this practice must be 0.60 or greater.
- Provide suitable habitat for desired wildlife species. This may require changes to harvest schedules, cover patterns, and minimal plant heights while managing the desired forage stand, plant community, and stand life.

E511B - Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity	July 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Time harvest to benefit the desired wildlife species by following state guidelines. Whenever possible, avoid harvest during the primary nesting season, harvest during daylight hours, and harvest in patterns (e.g. - beginning on one end of the field and working back and forth across the field or beginning in the center of the field and working outward).
- Cut forage at a height that will promote the vigor while leaving minimal stubble heights required by the desired wildlife species and the Cooperative Extension Service recommendations to avoid winterkill in cold climates.
- Harvest forage without compromising plant vigor and stand longevity and 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.
- 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% moisture and ted or invert swaths when moisture is above 40%. Bale field cured hay at 15% to 20% moisture.

E511B - Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity	July 2020	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Y 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.
- Y Prior to implementation, review the map delineating the fields selected for improving wildlife cover and shelter and enrolled in the enhancement.
- Y 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 selecting 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).
- Y Prior to implementation, provide the forage harvest plan to NRCS for review to confirm it meets the criteria of the enhancement.
- Y During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- Y During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- Y During implementation, keep the following documentation for each field:

Field	Forage species selected for harvest	Harvest height (inches)	Harvest Date



CONSERVATION STEWARDSHIP PROGRAM

Y After implementation, make documentation and photographs of forage cutting heights available for review to NRCS to verify implementation of the enhancement.

NRCS will:

- Y As needed, provide technical assistance to meet the criteria of the enhancement.
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- Y Prior to implementation, an NRCS biologist or partner wildlife biologist will complete the state-approved NRCS WHEG. Specific species targeted will be notated on the WHEG, and total score after implementation must equal 0.60 or greater.

Wildlife Species of Concern	
Cover & Shelter Requirements	
Planned WHEG Score after implementation	

- Y Prior to implementation, verify a map has been developed delineating the hayfields that will have the enhancement implemented.
- Y 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).



CONSERVATION STEWARDSHIP PROGRAM

- Develop specifications detailing the wildlife protection measures, such as selecting time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods.
- Υ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- Υ After implementation, verify the planned forage harvest was completed to specifications developed for the fields delineated.
- Υ After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.
- Υ If changes were made after implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

Wildlife Species of Concern	
Cover & Shelter Requirements	
WHEG Score after Implementation	



NRCS Documentation Review:

I have reviewed all required participant documentation and 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



E511B - Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity	July 2020	Page 6
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E511B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E511B the following additional criteria apply in Indiana:
 - Identify target species from table below. Contact wildlife biologist or grazing specialist if target species is not listed.

Table 1. Critical Life History Periods for Wildlife

Wildlife Species or Groups	Critical Life History Requirement	Critical No Mow/No Harvest Dates (required)	Additional No Mow/No Harvest Nesting/Brood Rearing Season
Whitetail Deer	Fawning	May 15- July 15	
Wild Turkey	Nesting/Brood rearing	May 1- June 30	April 15- August 15
Bobwhite quail	Nesting/Brood rearing	May 15- June 30	April 15 -August 15
Ring-necked pheasant	Nesting/Brood rearing	May 1- June 30	May 1 -September 30
Bobolink	Nesting	May 1 - July 31	April 15 -August 15
Meadowlark	Nesting	May 1 – July 31	April 15 – August 15
Henslow’s sparrow	Nesting	May 15 – July 31	April 15 – August 15
Grassland Birds	Nesting	May 15- July 31	April 15 – August 15
Monarchs*	Migration	August 1- September 30	

*Only applicable in hayfields that have blooming clover, alfalfa or other flowering forage species.



CONSERVATION STEWARDSHIP PROGRAM

- A harvest plan will be followed according to the IN FOTG 511 – Forage Harvest Management Standard and/or IN FOTG 645 Upland Wildlife Habitat Management- Delayed Haying Implementation Requirements.
- Harvesting heights will be followed. Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Overwintering Height ^{1/}	Mechanical Harvest Height
Introduced Grasses and Legumes	6	4
Native Grasses, Legumes and Forbs	12	6

^{1/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E511B the following additional documentation requirements apply in Indiana:
 - Harvested forage records including harvest dates and estimated yields.
 - A map showing deferred or unharvested safe zones.
 - A copy of the IN WHEG for Pasture/Hayland documenting current and planned conditions
 - Documentation of wildlife species of concern.



CONSERVATION ENHANCEMENT ACTIVITY

E511C

CONSERVATION STEWARDSHIP PROGRAM

Forage testing for improved harvesting methods and hay quality

Conservation Practice 511 Forage Harvest Management

APPLICABLE LAND USE: Perennial cropland (hayland) and Pasture

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Dry hay forage samples are collected and analyzed following LGU procedures. Analysis results are kept and used to improve harvest decisions to guide forage supplementation of on-farm livestock to meet nutritional needs and improve health and productivity.

Criteria

- This enhancement only applies to hay harvested on-farm.
- Develop a plan to harvest hay in a manner that protects stand longevity and maintains or improves forage quality. Plans must include specifications for harvest timing, handling prior to baling, and storage options to best preserve forage quality.
- At least **2 consecutive** cuttings will be required of the same forage type, but additional testing may be needed and should follow the Cooperative Extension or other specialist/nutritionists' recommendations and documented in the plan.
- Collect hay samples consistent with land grant university or accredited lab protocol for tissue sampling for each harvest cycle. Consult the National Forage Testing Association list of Certified Labs- <https://www.foragetesting.org/links> for more assistance.

E511C - Forage testing for improved harvesting methods and hay quality	May 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Complete a record keeping document that will include all the following at a minimum for each cutting:
 - Date and time of harvest AND date of baling
 - Forage type
 - Maturity stage/description during harvest including harvest height
 - Curing and handling prior to baling (number of tedding, raking, and/or merging operations)
 - Moisture during harvest
 - Bale type (Large square, Round, Small Square)
 - Storage type (indoor, poly-wrapped, tubed, tarped, net wrapped, unprotected etc.)
 - Crude protein
 - Fiber (NDF/ADF)
 - Ash
 - Total Digestible Nutrients (TDN)
 - Relative feed value (RFV)
 - Additional recommended tests (where available): NDF-Digestibility (30-hour recommended) and nitrates.
- Provide record keeping documents and hay test results to NRCS office.
- Discuss results with local Cooperative extension educator or livestock nutritionist, provide any recommendations to NRCS office for all harvesting cycles.
- Use results to improve harvesting decisions.
- Use hay analyses to guide forage supplementation to on-farm livestock.



CONSERVATION STEWARDSHIP PROGRAM

Adoption Requirements

This enhancement is considered adopted when the criteria is met, and documentation records are provided.





Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

- Prior to implementation, develop a map delineating the fields selected for gathering the hay analysis and record keeping documentation.
- Prior to implementation, ensure forage harvesting tool/machinery is capable of cutting the forage at the desired residual height without compromising plant vigor and stand longevity.
- Prior to implementation, develop a plan to harvest hay in a manner that protects stand longevity and maintains or improves forage quality and maintains adequate stubble. Plans must include specifications for harvest timing, handling prior to baling, and storage options to best preserve forage quality. Refer to NRCS Conservation Practice Standard Forage Harvest Management (Code 511).
- Prior to implementation, provide the forage harvest and forage sampling plan to NRCS for review. Two consecutive cuttings of the same forage type will be evaluated, preferably on the same field, unless the first harvested species will be different than the second harvest on the same field, (for example cool season species fields that transition to warm season forage later in the season). The first cutting must be tested after harvest and is one of the two required. Management decisions must be made from the first test to determine how to improve forage quality for the next cutting. Record keeping should be completed for each cutting and a report completed. Additional testing may be needed and should follow the Cooperative Extension or other specialist/nutritionists' recommendations and documented in the plan.
- During implementation, collect the number of forage samples on mapped field/s during each harvest cycle and send to a land grant university or accredited lab for tissue analysis.
- During implementation, keep records including all items under criteria.
- During implementation, discuss results and implement technical recommendations from Cooperative Extension, nutritionist or NRCS.

E511C - Forage testing for improved harvesting methods and hay quality	May 2020	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- During implementation, use analysis results and data to improve/adjust forage harvesting activities for the next harvest cycle.

Example: Ash content above internal sources

(calcium, magnesium, potassium, phosphorus); adjust cutting and/or rake heights to reduce external sources (dirt, bedding, etc.), use cutting heights and harvest timing to positively affect fiber level, change harvest timing to increase protein and NDF-d levels etc.

- During implementation use data collected from on-farm hay analysis to improve supplemental feeding periods for animals' health and productivity.
- After implementation, provide tissue analysis and all record keeping documentation to NRCS
- After implementation, provide technical recommendations from Cooperative Extension or other specialist/nutritionist to NRCS.
- After implementation, provide report on how the data enabled improvements to hay harvest and feed supplementation efficiency.

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 this enhancement.
- Prior to implementation, verify map and crop/hayfields where enhancement will apply.
- Prior to implementation, provide assistance in determining the forage cutting to be sent for analysis in addition to the required first cutting.
- Prior to implementation, provide assistance in determining the planned number of hay samples above the required 2.



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, verify management changes in harvest management have positively affected test values in the forage analysis results. Positive effects are but not limited to increases in crude protein levels, NDF-D and TDN values and/or lowering of NDF/ADF and Ash levels.
- After implementation, verify the hay harvest and hay analysis activities and record keeping meet the specifications of this enhancement.
- After implementation, review data driven report for hay harvest and supplemental feeding improvements.



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E511C

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E511C the following additional criteria apply in Indiana:
 - A harvest plan will be followed according to the IN FOTG 511 – Forage Harvest Management Standard on all enrolled acreage that is harvested.
 - Harvesting heights will be followed. Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Overwintering Height ^{1/}	Mechanical Harvest Height
Introduced Grasses and Legumes	6	4
Native Grasses, Legumes and Forbs	12	6

^{1/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E511C the following additional documentation requirements apply in Indiana:
 - Harvested forage records including harvest dates.



CONSERVATION ENHANCEMENT ACTIVITY

E511D

CONSERVATION STEWARDSHIP PROGRAM

Forage harvest management to improve terrestrial habitat for wildlife and invertebrates during critical over-winter periods

Conservation Practice 511: FORAGE HARVEST MANAGEMENT

APPLICABLE LAND USE: Crop (Perennial) RESOURCE CONCERN

ADDRESSED: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Eliminate or forgo the last fall cutting of hay or haylage to optimize wildlife cover and shelter during critical over-winter periods and lengthen late season bloom period for invertebrates. Allowing late season stand maturity increases stand life and reduces risks of frost and winter damage while providing valuable wildlife habitat and extended bloom periods.

Criteria

- Specify the wildlife species of concern on the state-approved NRCS Wildlife Habitat Evaluation Guide (WHEG). The species of concern must be one that is present for at least part of their life cycle in the geographical/physiographic region and benefit from the late season, over-winter standing hay/haylage crop.
- The state's WHEG must specify cover and shelter or continuity habitat requirements for the wildlife species of concern. The total WHEG score after installation of this practice must be 0.5 or greater.
- Eliminate or forgo the last scheduled fall cutting to provide suitable over-winter habitat for desired wildlife species and pollinators.

E511D - Forage harvest management to improve terrestrial habitat for wildlife and invertebrates during critical over-winter periods	April 2021	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Eliminate or forgo the last fall harvest to benefit the desired wildlife species by following state guidelines. {State Specify last date hay cutting may occur}
 - Example: Hay cutting in SD will occur no later than September 1 of the given year to allow adequate regrowth before winter dormancy.
- Prior cuttings to the foregone harvest must result in stubble heights that will promote health and vigor of the hayland species (refer to Conservation Practice Standard (CPS) 511). The last cutting of the season must ensure minimum plant heights required by the identified wildlife species. Regrowth and taller stubble heights will reduce winter-kill in cold climates (as applicable) and provide additional wildlife benefits. Refer to Cooperative Extension Service recommendations where available.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Y Prior to implementation, identify typical date of last fall cutting. Provide the forage harvest plan and cutting dates to NRCS for review to confirm it meets the criteria of the enhancement.
- Y Prior to implementation, design the last cutting heights to meet WHEG criteria.
- Y Bales from the last cutting prior to the foregone cutting must be removed from the field for off-field storage to minimize predator impacts.
- Y Prior to implementation, review the map delineating the fields selected for improving wildlife cover and shelter and enrolled in the enhancement.
- Y During implementation, take photographs of the forage stand to verify final cutting was left standing in the field and plant heights meet state wildlife requirements for the identified species. Overwintering stubble heights and regrowth must be maintained during the dormant period to promote wildlife habitat.
- Y During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- Y During implementation, keep the following documentation for each field:

Field	Forage species	Overwinter height (inches)	Last Harvest Date



CONSERVATION STEWARDSHIP PROGRAM

Y After implementation, make documentation and photographs of forage cutting heights available for review to NRCS to verify implementation of the enhancement.

NRCS will:

- Y As needed, provide technical assistance to meet the criteria of the enhancement.
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard and specifications of Pasture and Hay Planting (Code 512) as it relates to implementing this enhancement.
- Y Prior to implementation, an NRCS biologist or partner wildlife biologist will complete the state-approved NRCS WHEG. Specific species targeted will be notated on the WHEG, and total score after implementation must equal 0.50 or greater.

Wildlife Species of Concern	
Cover & Shelter Requirements	
Planned WHEG Score after implementation	

- Y Prior to implementation, verify a map has been developed delineating the hayfields that will have the enhancement implemented.
- Y 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).



CONSERVATION STEWARDSHIP PROGRAM

- Develop specifications detailing the wildlife protection measures, such as selecting time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods.
- Υ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- Υ After implementation, verify the planned forage harvest was completed to specifications developed for the fields delineated.
- Υ After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.
- Υ If changes were made after implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

Wildlife Species of Concern	
Cover & Shelter Requirements	
WHEG Score after Implementation	



NRCS Documentation Review:

I have reviewed all required participant documentation and 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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E511D

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E511D the following additional criteria apply in Indiana:
 - A harvest plan will be followed according to the IN FOTG 511 – Forage Harvest Management Standard on all enrolled acreage that is harvested.
 - Harvesting heights will be followed. Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Overwintering Height ^{1/}	Mechanical Harvest Height
Introduced Grasses and Legumes	6	4
Native Grasses, Legumes and Forbs	12	6

^{1/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E511B the following additional documentation requirements apply in Indiana:
 - Harvested forage records including harvest dates and estimated yields.
 - A map showing deferred or unharvested safe zones.



- A copy of the IN WHEG for Pasture documenting current and planned conditions. Documentation of wildlife species of concern.
 - The planned Pasture WHEG Primary Habitat Suitability Index Score for the target species must be greater than or equal to 0.5 and must show a minimum 0.1 increase from the existing benchmark condition.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION ENHANCEMENT ACTIVITY

E512A

CONSERVATION STEWARDSHIP PROGRAM

Cropland conversion to grass-based agriculture to reduce soil erosion

CONSERVATION PRACTICE: 512 - Pasture and Hay Planting

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

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Conversion of cropped land to grass-based agriculture to reduce soil erosion. Mixtures of perennial grasses, forbs, and 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 soil erosion.
- Establish perennial grassland mixture on cropland. Mixtures shall be selected based on:
 - Minimum of 50% grass species.
 - Must contain at least one legume.
 - 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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 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 non-bloating 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.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, select a perennial grassland mixture for establishment. The mixture must contain at least one legume. *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 than can tolerate close grazing and trampling.

CONSERVATION STEWARDSHIP PROGRAM

Species	Species type (grass, legume, forb)

- 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	

- If livestock are included in the system, during implementation following establishment, a grazing plan must be developed 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.
 - If livestock are included in the system, keep documentation and photographs of turn in/turn out grazing records for each field.
- 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, use selected mixture and site information to calculate the before and after soil loss erosion using current NRCS wind and water erosion prediction technologies. **Soil erosion BEFORE _____ t/ac/year and AFTER _____ t/ac/year**
- 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. If livestock are included in the system, in areas where animals congregate, establish persistent species than 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.
- Prior to implementation, verify the enhancement is planned for cropland.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- 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.
- After implementation, verify the planned 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E512A the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard during the growing season.
 - Follow IN FOTG 511, Forage Harvest Management if mechanically harvested.
 - “Grasses and legumes” will be selected utilizing the Indiana Seeding Calculator found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
 - Utilize and follow the Indiana Seeding Guidelines found in: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12



CONSERVATION STEWARDSHIP PROGRAM

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

- Grazing and or mechanical harvest will be deferred until the forages are well established.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E512A the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.

Notes and comments on this National Enhancement:

- E512102Z and E512101Z1 similar old enhancements



CONSERVATION ENHANCEMENT ACTIVITY

E512B

CONSERVATION STEWARDSHIP PROGRAM

Forage and biomass planting to reduce soil erosion or increase organic matter to build soil health

CONSERVATION PRACTICE: 512 - Pasture and Hay Planting

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN: Soil

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 or forb and legume plant species or a mix of annual and perennial 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.
- 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.
- Prepare seed bed for planting that does not restrict plant emergence or leave the site vulnerable to erosion.
- Planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.

E512B - Forage and biomass planting to reduce soil erosion or increase organic matter to build soil health	July 2022	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 or deep-rooted perennial and annual species mix 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 and Implementation Requirements

Participant will:

- Prior to implementation, select a deep-rooted perennial forage species or grassland mixture of deep-rooted perennials and annuals 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.)*

Species	Forage category (grass, legume, forb)

- 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

- 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 and ensure adequate stubble heights remain to prevent erosion.
- 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 rate basis (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 and stubble height residue 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.
- After implementation, make the forage planting and grazing records and photos available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- 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
- 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 and maintain adequate stubble heights to prevent erosion.



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the planned 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E512B the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard during the growing season.
 - Follow IN FOTG 511, Forage Harvest Management if mechanically harvested.
 - Grazing and or mechanical harvest will be deferred until the forages are well established.
 - “Grasses and legumes” will be selected utilizing the Indiana Seeding Calculator found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools for IN FOTG 512 – Pasture and Hay Planting Standard.
 - Utilize and follow the Indiana Seeding Guidelines found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3



CONSERVATION STEWARDSHIP PROGRAM

Native Grasses, Legumes and Forbs	6	12
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^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E512B the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.

Notes and comments on this National Enhancement:

- Similar to old enhancement E512101Z2



CONSERVATION ENHANCEMENT ACTIVITY

E512C

CONSERVATION STEWARDSHIP PROGRAM

Cropland conversion to grass for soil organic matter improvement

CONSERVATION PRACTICE: 512 - Pasture and Hay Planting

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

RESOURCE CONCERN: Soil

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 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.
 - 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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 non-bloating 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.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, select a perennial grassland mixture for establishment. 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. (NRCS will provide technical assistance, as



needed.) *If livestock are included in the system*, in areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.

CONSERVATION STEWARDSHIP PROGRAM

Species	Species type (grass, legume, broadleaf)

- 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	

- If livestock are included in the system*, during implementation following establishment, a grazing plan must be developed 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.
 - If livestock are included in the system*, keep documentation and photographs of turn in/turn out grazing records for each field.
- After implementation, make documentation and records 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, 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** = _____



CONSERVATION STEWARDSHIP PROGRAM

- 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.
- Prior to implementation, verify the enhancement is planned for cropland.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- 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.
- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512C

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E512C the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard during the growing season.
 - No mechanical forage removal on enrolled acreage to reduce carbon removal off site and maintain or increase root biomass.
 - “Grasses and legumes” will be selected utilizing the Indiana Seeding Calculator found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools for IN FOTG 512 – Pasture and Hay Planting Standard.
 - Utilize and follow the Indiana Seeding Guidelines found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
 - Grazing will be deferred until the forages are well established.
 - Rest periods will be a minimum of 60 days between grazing periods. More paddocks and or additional use of temporary fencing aids extending the rest periods. Longer deferments are recommended to obtain deeper and more massive root systems. High density short duration grazing systems would also be beneficial.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.



CONSERVATION STEWARDSHIP PROGRAM

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	4
Native Grasses, Legumes and Forbs	6	12

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in larger rotated systems.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E512C the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.
 - A high density short duration grazing plan if implemented.
 - ⊖ Yearly monitoring utilizing the Indiana Pasture Condition Scoresheet (PCS) located in the FOTG: Section 3 - Resource Concerns and Planning Criteria _Initial PCS(s) will be taken between July 1 and August 15, and followup PCS(s) will be taken in July and September each year until the target **PCS of 40** is reached.
 - Copies of the completed PCS(s) will be provided to the NRCS field office.

Notes and comments on this National Enhancement:

- Similar to old enhancement E512106Z1



CONSERVATION ENHANCEMENT ACTIVITY

E512D

CONSERVATION STEWARDSHIP PROGRAM

Forage plantings that help increase organic matter in depleted soils

CONSERVATION PRACTICE: 512 - Pasture and Hay Planting

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

RESOURCE CONCERN: Soil

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 or forb and legume plant species or a mix of annual and perennial 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. In these circumstances, organic matter can be increased through planting of deep-rooted perennial species or a mix of deep-rooted perennials and annual species with the capability of moving carbon into the soil horizons naturally, and then 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.

E512D - Forage plantings that help increase organic matter in depleted soils	July 2022	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Prepare seed bed for planting that does not restrict plant emergence or leave the site vulnerable to erosion.
- 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 ensure 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 and Implementation Requirements

Participant will:

- Prior to implementation, select a deep-rooted perennial forage species or grassland mixture of deep-rooted perennials and annuals 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.)

Species	Forage category (grass, legume, forb)

- 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	
Seeding rate	

- 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 and ensure adequate stubble heights remain to prevent erosion.
- 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 rate basis (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 and stubble height residue 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.
- After implementation, make the forage planting and grazing records 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).
 - 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 and maintain adequate stubble heights to prevent erosion.



- During implementation, evaluate any planned changes to verify they meets the enhancement criteria.
- After implementation, verify the planned 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512D

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E512D the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard during the growing season.
 - No mechanical forage removal on enrolled acreage to reduce carbon removal off site and maintain or increase root biomass.
 - “Grasses and legumes” will be selected utilizing the Indiana Seeding Calculator found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools for IN FOTG 512 – Pasture and Hay Planting Standard.
 - Utilize and follow the Indiana Seeding Guidelines found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
 - Grazing and will be deferred until the forages are well established.
 - Rest periods will be a minimum of 60 days between grazing periods. More paddocks and or additional use of temporary fencing aids extending the rest periods. Longer deferments are recommended to obtain deeper and more massive root systems. High density short duration grazing systems would also be beneficial.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.



CONSERVATION STEWARDSHIP PROGRAM

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	4
Native Grasses, Legumes and Forbs	6	12

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E512D the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.
 - A high density short duration grazing plan if implemented.
 - Yearly monitoring utilizing the Indiana Pasture Condition Scoresheet (PCS) located in the FOTG: Section 3 - Resource Concerns and Planning Criteria _Initial PCS(s) will be taken between July 1 and August 15, and followup PCS(s) will be taken in July and September each year until the target **PCS of 40** is reached.
 - Copies of the completed PCS(s) will be provided to the NRCS field office.



CONSERVATION ENHANCEMENT ACTIVITY

E512I

CONSERVATION STEWARDSHIP PROGRAM

Establish pollinator and beneficial insect or Monarch habitat

CONSERVATION PRACTICE: 512 - Pasture and Hay Planting

APPLICABLE LAND USE: Pasture; Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals

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/or 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

- 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 specified, pollinating insects (and/or 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.
- 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.

E512I - Establish pollinator and beneficial insect or Monarch habitat	July 2022	Page 1
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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 recommended viable strain of Rhizobia immediately before planting.
- When selecting Monarch habitat, 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.

Documentation and Implementation Requirements

Participant will:

Prior to implementation, select a perennial forage species or grassland species 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.)

Species	Forage category (grass, legume, forb)

- 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	

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 grazed forages to recover and develop habitat before re- grazing occurs.



CONSERVATION STEWARDSHIP PROGRAM

- 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, 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 for each field.
- 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 state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).
Target Pollinator Species: _____
WHEG score before implementation: _____
WHEG score after implementation: _____
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- 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.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.



- After implementation, verify the planned 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512I

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E512I the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard during the growing season.
 - No mechanical forage removal on enrolled corridor acreage.
 - “**Native** grasses, forbs, and legumes” will be selected utilizing the Indiana Seeding Calculator found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools for the IN FOTG 512 – Pasture and Hay Planting Standard. Only wildlife friendly species will be used.
 - Mixes will contain a minimum of nine (9) different species of pollinator-friendly flowering plants, including wildflowers, legumes, and/or shrubs. At least three (3) species are required for each bloom period of April-June 15 (early), June 15 -July (mid), and August-October (late).
 - The seeding rate of all forbs/legumes will total 16 oz/acre.
 - Utilize and follow the Indiana Seeding Guidelines found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
 - If grazed, stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.



CONSERVATION STEWARDSHIP PROGRAM

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Native Grasses, Legumes and Forbs	6	12

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in larger rotated systems.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

- Grazing and or mechanical harvest will be deferred until the forages are well established.
- Rest periods will be a minimum of 60 days between grazing periods. More paddocks and or additional use of temporary fencing aids extending the rest periods. Longer deferments are recommended.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E512I the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.
 - A grazing plan with planned deferments for wildlife.
 - **A copy of the IN WHEG for Pasture documenting current and planned conditions.**
 - Documentation of wildlife species of concern.



CONSERVATION ENHANCEMENT ACTIVITY

E512J

CONSERVATION STEWARDSHIP PROGRAM

Establish wildlife corridors to provide habitat continuity or access to water

CONSERVATION PRACTICE: 512 - Pasture and Hay Planting

APPLICABLE LAND USE: Pasture; Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals

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.
- 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.

E512J - Establish wildlife corridors to provide habitat continuity or access to water	July 2022	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 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.)

Species	Species type (grass, legume, forb)

- 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

- 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.
- If livestock are included in the grazing system, in areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.
- 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 for each field.
- During implementation, ensure that the forage/biomass is protected from grazing or other plant defoliation/biomass loss.
- After implementation, make the forage planting and grazing records 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 and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- Prior to implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

Species of concern: _____
WHEG score before implementation: _____
WHEG score after implementation: _____

- 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.



CONSERVATION STEWARDSHIP PROGRAM

- *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.
- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512J

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E512138Z the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard during the growing season.
 - The area must have or be directly adjacent to a natural spring, stream, or other water body for water access for wildlife.
 - No mechanical forage removal on enrolled corridor acreage.
 - “**Native** grasses, forbs, and legumes” will be selected utilizing the Indiana Seeding Calculator found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools for the IN FOTG 512 – Pasture and Hay Planting Standard. Only wildlife friendly species will be used.
 - Utilize and follow the Indiana Seeding Guidelines found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
 - Rest periods will be a minimum of 60 days between grazing periods. Longer periods will provide more shelter and diversity of height for wildlife cover and habitat. More paddocks and or additional use of temporary fencing aids extending the rest periods. Longer deferments are recommended to obtain deeper and more massive root systems.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for



adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.

CONSERVATION STEWARDSHIP PROGRAM

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Native Grasses, Legumes and Forbs	6	12

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in larger rotated systems.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

- Grazing and or mechanical harvest will be deferred until the forages are well established.
- Rest periods will be a minimum of 60 days between grazing periods. More paddocks and or additional use of temporary fencing aids extending the rest periods. Longer deferments are recommended.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E512J the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.
 - A grazing plan with planned deferments for wildlife.
 - A copy of the IN WHEG for Pasture documenting current and planned conditions.
 - Documentation of wildlife species of concern.
 - Documentation showing improved access to water resources resulting from the implementation of this enhancement (ex: maps showing increased corridors and limited current access).



E512L

CONSERVATION STEWARDSHIP PROGRAM

Diversifying forage base with interseeding forbs and legumes to increase pasture quality

Conservation Practice 512 (L): Pasture and Hay Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that increases the diversity to enhance livestock, forage supply and quality, not available in other pastures.

Criteria

- Select perennial, forbs and legume plant species and their cultivars based on compatibility with established forage species, climatic conditions, soil condition, landscape position and resistance to disease and insects.
- 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.
- Utilize seed and planting materials that will meet State quality standards.
- Inter-seeding method will not restrict plant emergence or leave the site vulnerable to erosion.
- When planting legumes, use pre-inoculated seed, inoculum coated seed, or inoculate with the recommended viable strain of rhizobia immediately before planting.

E512L – Diversifying forage base with interseeding forbs and legumes to increase pasture quality	April 2021	Page 1
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E512L

CONSERVATION STEWARDSHIP PROGRAM

- Select plants that will help meet livestock forage demand during times that normal forage production is not adequate.
- Use forage species that will meet the desired level of nutrition (quantity and quality) for the kind and class of livestock to be grazed or fed.
- Select species mixtures with similar palatability to avoid selective grazing.
- Select species with low or not toxic effects on grazing livestock. If two species for consideration provide similar forage quality, with one providing added benefit to wildlife and pollinator species, the wildlife beneficial species should be selected.
- In areas where animals congregate, consider establishing persistent species that can tolerate close grazing and trampling.
- Refer to NRCS Conservation Practice Standard (CPS) Nutrient Management (Code 590) for details for managing nutrients.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test and LGU recommendations. Legume seed will be pre-inoculated or inoculated with the recommended viable strain of Rhizobia immediately before planting.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, select a perennial forb and/or legume 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.)

Species	Species type (grass, legume, broadleaf)

- 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	
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E512L

CONSERVATION STEWARDSHIP PROGRAM

Planting Technique	
Seeding rates	

- *Prior to implementation when livestock are included in the system, modify the grazing plan that maintains grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.*
- *Prior to implementation, a current (within 3 years of the proposed planting date) soil sample analysis is required when soil amendments will be added.*
- *During implementation, exclude livestock until the overseeded species are well established and have reached the full start grazing heights or recommended cutting heights before the first grazing or cutting begins. Refer to Conservation Practice Standards (CPS) 511 Forage Harvest Management and (CPS) 528 Prescribed Grazing for more information.*
- *During implementation, keep the following documentation:*
 - *Records, seed tags and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.*
 - *Documentation of seed rate basis (Pure Live Seed) and any fertilizer or soil amendments and rates used for the implementation of the enhancement.*
- *During implementation where livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records for each field are required.*
- *As needed, provide technical assistance to meet the criteria of the enhancement.*
- *Prior to implementation, provide and explain NRCS Conservation Practice Standard Pasture and Hay Planting (Code 512) and all supporting implementation requirements and specifications as it relates to implementing this enhancement.*
- *Prior to implementation where livestock are included in the system, modify the grazing*

E512L – Diversifying forage base with interseeding forbs and legumes to increase pasture quality	April 2021	Page 3
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E512L

CONSERVATION STEWARDSHIP PROGRAM

plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs and maintain sufficient height to protect from soil erosion.

- As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Pasture and Hay Planting (512).
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the planned perennial forbs/ legumes or mixture was established to specifications developed for the site.

NRCS Documentation Review:

E512L – Diversifying forage base with interseeding forbs and legumes to increase pasture quality		
	April 2021	Page 4



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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512L

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E512L the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that "stop grazing" heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard during the growing season.
 - Follow IN FOTG 511, Forage Harvest Management if mechanically harvested.
 - Interseeded species will be selected utilizing the Indiana Seeding Calculator found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools for IN FOTG 512 – Pasture and Hay Planting Standard. Only forbs and legumes native to Indiana and approved non-native legumes will be used. NRCS will develop or approve suitable seeding specifications prior to interseeding.
 - Utilize and follow the Indiana Seeding Guidelines found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools / Indiana Seeding Guidelines
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3



CONSERVATION STEWARDSHIP PROGRAM

Native Grasses, Legumes and Forbs	6	12
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^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in larger rotated systems.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

- Grazing and or mechanical harvest will be deferred until the forages are well established.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E512L the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.

Notes and comments on this National Enhancement:

- Replaces E512G.



CONSERVATION ENHANCEMENT ACTIVITY

E512M

CONSERVATION STEWARDSHIP PROGRAM

Forage plantings that improve wildlife habitat cover and shelter or structure and composition

CONSERVATION PRACTICE: 512 - Pasture and Hay Planting

APPLICABLE LAND USE: Pasture; Associated Ag Land

RESOURCE CONCERN: Plants, Animals

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 or structure and composition for wildlife.

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.
- Select native, perennial, grass/forb/legume plant species (all species must be native) 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 wildlife species of concern when they will be present.

E512M - Forage plantings that improve wildlife habitat cover and shelter or structure and composition	July 2022	Page 1
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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 cover and shelter habitat requirements for specified wildlife 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 wildlife species of concern.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, select a perennial species or grassland mixture for establishment. (NRCS will provide technical assistance, as needed.)

Species	Forage category (grass, legume, forb)

- 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

- If livestock are included in the grazing system, prior to implementation a grazing plan must be developed 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.
 - If livestock are included in the grazing system, documentation, and photographs of turn in/turn out grazing records for each field.
- 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 state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).
Targeted Species: _____
WHEG score before implementation: _____
WHEG score after implementation: _____
- 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.
- During implementation, evaluate any planned changes to verify they meets the enhancement criteria.
- After implementation, verify the 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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____

Contract Number _____

Total Amount Applied _____

Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512M

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E512H the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard during the growing season.
 - No mechanical forage removal on enrolled acreage reduce carbon removal off site and maintain or increase root biomass.
 - **“Native Grasses, forbs, and legumes” will be selected utilizing the Indiana Seeding Calculator** found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools for the IN FOTG 512- Pasture and Hay Planting Standard. Deep rooted native warm season grasses are encouraged. Use wildlife friendly species.
 - Utilize and follow the Indiana Seeding Guidelines found in the FOTG: Section 4 - Practice Standards and Supporting Documents / Ecological Sciences Tools
 - Rest periods will be a minimum of 60 days between grazing periods. Longer periods will provide more shelter and diversity of height for wildlife cover and habitat. More paddocks and or additional use of temporary fencing aids extending the rest periods. Longer deferments are recommended to obtain deeper and more massive root systems. High density short duration grazing systems would also be beneficial on up to 25% of the enrolled acreage once established providing additional diversity in plants and habitat for more diverse wildlife.
 - Grazing and will be deferred until the forages are well established.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present

E512M	January 2024	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions. Overwintering heights will be maintained for grazed and harvested fields.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Native Grasses, Legumes and Forbs	6	12

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E512H the following additional documentation requirements apply in Indiana:
 - Certified seed tags are required.
 - A high density short duration grazing plan if implemented.
 - A copy of the IN WHEG for Pasture documenting current and planned conditions.
 - If the final planned WHEG score exceeds 0.5 but does not meet the national requirement of 0.6, contact the State Biologist for a secondary WHEG review.
 - Documentation of wildlife species of concern. Species of concern for this enhancement may include northern bobwhite, ring-necked pheasant, grassland songbirds, and other grassland dependent bird species.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.



CONSERVATION ENHANCEMENT ACTIVITY

E528A

CONSERVATION STEWARDSHIP PROGRAM

Maintaining quantity and quality of forage for animal health and productivity

CONSERVATION PRACTICE: 528 - Prescribed Grazing

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Managing the harvest of vegetation with grazing and/or browsing animals for the purposes of maintaining desired plant composition/plant vigor and improving/maintaining quantity and quality of forage for the animals' health and productivity. Follow the recommendations of a qualified 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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 qualified professional's provided recommendations (see documentation requirements) will be based on the National Research Council's Nutrient Requirements of Domestic Animals.

Documentation and Implementation Requirements

Participant will:

- 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 certified for development of a DIA 159, or a non-affiliated consultant with a bachelor or higher level degree in forage agronomy, range science, animal science, animal nutrition or other closely-related plant science discipline or a minimum of three years' experience in grazing lands conservation planning and grazing animal nutrition.
- During implementation, keep records to annually document prescribed grazing requirements are met.
- After implementation, make available documentation of protein and energy of consumed forages/browse based on a land grant university laboratory analysis, including corresponding management recommendations. The analysis be based on collected sample of the forage available to the livestock or fecal samples analyzed with appropriate Near-infrared spectroscopy (NIRS). ON FOREST LAND USE, fecal samples can only be analyzed in Arizona and New Mexico at this time. 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.**



- After implementation, make grazing and supplementation records available for review by NRCS.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Prior to implementation, assist the participant with development of a grazing plan if requested to do so.
- During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions, as it relates to sample analysis results.
- After implementation, review forage or fecal sampling schedule and corresponding management actions taken to determine if a supplementation plan was reasonably followed.
- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528A the following additional criteria apply in Indiana:
 - Not a suitable enhancement on forest land use in Indiana.
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below.
 - Follow IN FOTG 511, Forage Harvest Management if mechanically harvested.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native



CONSERVATION STEWARDSHIP PROGRAM

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant. No restrictions on post dormancy grazing heights on tall fescue dominant pastures where runoff is not a resource concern.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- In lieu of a forage utilization job sheet, document in the assistance notes that "stop grazing" heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.
- Fecal samples should be collected starting in mid-June and continued on a monthly basis until the six samples are taken.
- Reference: <https://cnrit.tamu.edu/index.php/ganlab/>
- Similar to old enhancement E528140Z1



CONSERVATION ENHANCEMENT ACTIVITY

E528B

CONSERVATION STEWARDSHIP PROGRAM

Grazing management that improves Monarch butterfly habitat

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Range, Pasture, Forest

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Implement a grazing management plan that will increase the abundance and diversity of monarch nectar-producing perennial forbs, including milkweed, while maintaining ecosystem benefits for other wildlife and livestock.

Criteria

- Evaluate habitat in the enhanced, delineated Monarch areas with the state NRCS Monarch Butterfly Wildlife Habitat Evaluation Guide (WHEG) and manage delineated Monarch areas to improve the WHEG score at least one category (e.g. from poor to fair, or from good to excellent).
- Enhance diversity of rangeland plants to optimize delivery of nutrients to domestic grazing 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,
 - Grazing plan,

E528B - Grazing management that improves Monarch butterfly habitat	July 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- A contingency plan, and
- Monitoring and needed adjustments for Monarchs, domestic grazing animals, and other wildlife (including pollinators).
- Defer, rest, or graze the enhanced, delineated Monarch areas to meet the nectar-producing forbs, including milkweed, needs of Monarch Butterflies when the Monarchs will be migrating through the area (e.g. spring and fall for the southern Great Plains, summer and fall for the Midwest, northern Great Plains and east, and spring through fall for the west.
- Delineate Monarch area(s) within the planned enhancement area/acres, comprising at least 5 acres or at least 5% of the planned enhancement area/acres, whichever is most.
- 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Y Prior to implementation, develop a map delineating the areas where the Monarch habitat will be implemented.
- Y 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 Map identifying all permanent pastures, water sources, and any riparian area or watershed drainage locations improved or maintained by this management.
 - o Forage inventory
 - o Forage-animal balance sheet
 - 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 and for events that trigger adverse results.
 - o Monitoring locations, key species, and monitoring techniques.
- Y Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).
- Y 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.
- Y During implementation, defer, rest, or graze the enhanced, delineated Monarch areas to meet the nectar-producing forbs, including milkweed, needs of Monarch Butterflies when the Monarchs will be migrating through the area (e.g. spring and fall for the



CONSERVATION STEWARDSHIP PROGRAM

southern Great Plains, summer and fall for the Midwest, northern Great Plains and east, and spring through fall for the west.

- Y 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.
- Y After implementation, make all records available for review by NRCS to verify implementation of the enhancement.
- Y After implementation, complete an assessment of the site with NRCS using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

NRCS will:

- Y As needed, provide technical additional assistance to the participant as requested.
- Y Prior to implementation, verify there are at least two delineated Monarch areas within the enrolled area, comprising at least 5 acres or 5% of the enrolled area, whichever is most.
- Y 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.
- Y Prior to 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 will be one category higher than initial score when specifically rated for Monarch Butterflies.

WHEG score before implementation: _____

WHEG score after implementation: _____

- Y 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.
- Y During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.



CONSERVATION STEWARDSHIP PROGRAM

Y After implementation, review grazing plan, records, and documentation to verify the enhancement was implemented to meet the criteria.

Y 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 will be one category higher than initial score when specifically rated for Monarch Butterflies. **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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528B the following additional criteria apply in Indiana:
 - Not applicable on forest land in Indiana.
 - No mechanical forage removal, mowing, or grazing during the deferment.
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard after the deferment. Stop grazing heights will be followed once the **deferment period is over**.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table **after the deferment**: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	4
Native Grasses, Legumes and Forbs	6	12

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E528B the following additional documentation requirements apply in Indiana:
 - A map showing the location and deferment time frame must be included with the grazing plan.



- A copy of the Monarch Butterfly Wildlife Evaluation WHEG for documenting current and planned conditions.

CONSERVATION STEWARDSHIP PROGRAM

Notes and comments on this National Enhancement:

- Disregard the terminology "rangeland" plants. These will be pasture forage species here in Indiana.
- Consult with the NRCS State Agronomist/Grazing Specialist and or NRCS State Biologist for more information.





CONSERVATION ENHANCEMENT ACTIVITY

E528C

CONSERVATION STEWARDSHIP PROGRAM

Incorporating wildlife refuge areas in contingency plans for wildlife

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture; Range; Forest

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

A prescribed grazing plan that includes 12 month (or longer) rest (non-grazing period equal or greater than one year) of a grazing unit that consists of native 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 or wildlife access to water 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:
 - Clear objectives,
 - A resource inventory of structural improvements, existing resource conditions, and forage inventory.
 - Grazing plan, and

E528C - Incorporating wildlife refuge areas in contingency plans for wildlife	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- A contingency plan
- A monitoring 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 wildlife 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 rested from all harvest by livestock or prescribed burning for a period of 12 months or longer.
- The rested 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).
- The rested area can be used to stockpile forages to build reserves for livestock forage after the 12-month rest period.
- In the event the designated refuge area gets utilized by livestock during a drought/disaster emergency or other contingency situation, during the life of the contract, it must be restored or let recover or another pasture designated and rested for 12 months following the emergency utilization.
- Water must be made available for the wildlife species of concern designated in the grazing plan in the refuge area or nearby where the refuge provides needed cover for water access.



Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

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).
- Prior to implementation, provide locations of water access.
- 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, what conditions create the need to implement a contingency plan, and what monitoring method(s) will be used.
 - The grazing plan will include a minimum of a 12-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, maintain water in the refuge area or nearby where the refuge provides needed cover for water access.
- 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.
 - Monitoring data and actual use records.

E528C - Incorporating wildlife refuge areas in contingency plans for wildlife	July 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- Any documented changes to the plan as result of contingency or monitoring data.

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).

Species of Concern: _____

WHEG score before implementation: _____

WHEG score after implementation: _____

- 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).

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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528C

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528C the following additional criteria apply in Indiana:
 - No mechanical forage removal, mowing, or grazing during the deferment.
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard after the deferment. Stop grazing heights will be followed once the **deferment period is over**.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table **after the deferment**: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	4
Native Grasses, Legumes and Forbs	6	12

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E528C the following additional documentation requirements apply in Indiana:
 - Additional feed may be needed if numbers are not reduced.
 - A map showing the location and deferment time frame must be included with the grazing plan.



CONSERVATION STEWARDSHIP PROGRAM

- A copy of the IN WHEG for Pasture documenting current and planned conditions.
- Documentation of wildlife species of concern.

Notes and comments on this National Enhancement:

- Disregard the terminology "rangeland" plants. These will be pasture forage species here in Indiana.
- A reference sheet will be utilized in lieu of an ecological site description to document dominant species present.
- Similar old enhancements were E528136Z2, E528137Z2, E528138Z, E528140Z2



CONSERVATION ENHANCEMENT ACTIVITY

E528D

CONSERVATION STEWARDSHIP PROGRAM

Grazing management for improving quantity and quality of food or cover and shelter for wildlife

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range, Forest

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Grazing management employed will provide the plant structure, density and diversity needed for improving the quantity and quality of cover, shelter and food 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
 - Resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
 - Grazing plan, and

E528D - Grazing management for improving quantity and quality of food or cover and shelter for wildlife	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 0.60 or greater.



Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

- 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.
 - 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.

- Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

- During implementation, keep the following documentation:
 - Livestock herd management records with seasonally important phenological stages of plant growth relative to species of concern.
 - 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 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.

E528D - Grazing management for improving quantity and quality of food or cover and shelter for wildlife	July 2019	Page 3
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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).

Species of Concern: _____

WHEG score before implementation: _____

WHEG score after implementation: _____

- 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.
- 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).

WHEG score after implementation: _____

E528D - Grazing management for improving quantity and quality of food or cover and shelter for wildlife	July 2019	Page 4
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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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



E528D - Grazing management for improving quantity and quality of food or cover and shelter for wildlife	July 2019	Page 5
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528D

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528D the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below.
 - No mechanical forage removal on enrolled acreage.
 - No mowing is permitted except as an as-needed basis to spot mow to control noxious or invasive species. Pictures of noxious or invasive species prior to mowing and documented locations on a map is required. Brush mowing to control woody species is permitted on no more than 25% of the enrolled acreage and after the nesting/fawning season of April 1 to August 1.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - To ensure diversity in forage heights, there will be a minimum of eight (8) paddocks in the grazing system and or low enough stocking rate to ensure diversity in forage heights throughout the primary nesting season of April 1 to August 1.
 - Rest periods will be a minimum of 60 days between grazing periods. Longer periods will provide more shelter and diversity of height for wildlife cover and habitat. More paddocks and or additional use of temporary fencing aids extending the rest periods. Animal numbers may need to be reduced to maintain adequate wildlife cover.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be



CONSERVATION STEWARDSHIP PROGRAM

removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	4
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in larger rotated systems.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E528D the following additional documentation requirements apply in Indiana:
 - A contingency plan for livestock feed/forage for adverse conditions.
 - A copy of the IN WHEG for Pasture documenting current and planned conditions.
 - Documentation of wildlife species of concern.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- Disregard the terminology "rangeland" plants. These will be pasture forage species here in Indiana.
- A reference sheet will be utilized in lieu of an ecological site description to document dominant species present.



CONSERVATION ENHANCEMENT ACTIVITY

E528E

CONSERVATION STEWARDSHIP PROGRAM

Improved grazing management for enhanced plant structure and composition for wildlife

Conservation Practice 528: Prescribed Grazing

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

RESOURCE CONCERN: Plants

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.).
- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.)

E528E-Improved grazing management for enhanced plant structure and composition for wildlife	November 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 to maintain a minimum score of 0.60 when evaluated with the state NRCS Wildlife Habitat Evaluation Guide (WHEG).



Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

- 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.
 - 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.

- Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

- During implementation, keep the following documentation:
 - Livestock herd management records with seasonally important phenological stages of plant growth relative to species of concern.
 - 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 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.

E528E-Improved grazing management for enhanced plant structure and composition for wildlife	November 2019	Page 3
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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).

Species of Concern: _____

WHEG score before implementation: _____

WHEG score after implementation: _____

- 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 Enhancement E314A, if sequentially applicable.
- 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).

WHEG score after implementation: _____

E528E-Improved grazing management for enhanced plant structure and composition for wildlife	November 2019	Page 4
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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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528E

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528133Z2 the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that "stop grazing" heights are being maintained as directed in the table below.
 - No mechanical forage removal on enrolled acreage.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - To ensure diversity in forage heights, there will be a minimum of eight (8) paddocks in the grazing system and or low enough stocking rate to ensure diversity in forage heights throughout the primary nesting season of April 1 to August 1.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native



CONSERVATION STEWARDSHIP PROGRAM

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- In lieu of a forage utilization job sheet, document in the assistance notes that "stop grazing" heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.
- Similar to old enhancement E528133Z2



CONSERVATION ENHANCEMENT ACTIVITY

E528F

CONSERVATION STEWARDSHIP PROGRAM

Stockpiling cool season forage to improve structure and composition or plant productivity and health

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture; Associated Agricultural Land; Crop (Perennial); Crop (Annual and Mixed)

RESOURCE CONCERN: Plants

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.
- Stockpile will be grazed in a manner that maintains specified minimum forage heights in the grazing plan to avoid damage to soil or forage.

E528F – Stockpiling cool season forage to improve structure and composition or plant productivity and health	April 2021	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.

Documentation and Implementation Requirements

Participant will:

- 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.

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.



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



E528F – Stockpiling cool season forage to improve structure and composition or plant productivity and health	April 2021	Page 3
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528F

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528F the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below.
 - Work with the Area Grazing Specialist to complete the Indiana stockpile forage sheet and include in the grazing plan.
 - No mechanical forage removal on enrolled acreage reduce carbon removal off site and maintain or increase root biomass.
 - Grazing will be deferred starting September 1st until forages are dormant. Forages will be considered dormant after 3 consecutive nights of 28 degree or less temperatures and post November 1st.
 - A minimum of one acre of stockpiled forage per animal unit will be allocated or equivalent to a minimum of 1800 dry matter per acre. One animal unit (AU) is equivalent to 1000 pounds live weight.
 - Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed or no less than 750 pounds of dry matter per acre.



CONSERVATION STEWARDSHIP PROGRAM

Forage Type	Stop Grazing Height (inches) ^{1/}	HSD Grazing Height (inches) ^{2/}
Introduced Grasses and Legumes	3	2
Native Grasses, Legumes and Forbs	8	N/A

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Post grazing heights for deferments longer than 90 days or with >4000 pounds of dry matter present AND grazed under a high density short duration grazing system (HSD) and allocated in 1 day allotments. A fair amount of forage is laid down on the soil surface.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E528F the following additional documentation requirements apply in Indiana:
 - A photo documentation of the stockpiled forage with a ruler or yardstick indicating forage height prior to grazing for each field and or clipping data.
 - A photo documentation of the stockpiled forage with a ruler or yardstick indicating residual post grazing for each field and or clipping data.
 - Certification of practice completion must include deferment period, and start and stop forage amounts and dates.

Notes and comments on this National Enhancement:

- The stockpiled area will be fertilized as the beginning of the stockpiling period, according to an approved soil test, to achieve adequate forage growth. If legumes make up 30% or more of the stand by dry weight, additional nitrogen will not be required.



CONSERVATION ENHANCEMENT ACTIVITY

E528G

CONSERVATION STEWARDSHIP PROGRAM

Improved grazing management on pasture for plant productivity and health with monitoring activities

CONSERVATION PRACTICE: 528 - Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 1 years

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.
- 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.)

E528G - Improved grazing management on pasture for plant productivity and health with monitoring activities	April 2022	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.
- Perform a soils test on the applicable acres for organic matter and nutrient analysis through a land grant university or accredited lab.
- Apply fertilizer and/or soil amendments according to a current soil test when plant vigor needs improvement.
- Follow guidelines provided by a Certified Forage and Grassland Professional, Certified Range Management Consultant, or Certified Professional in Range Management, NRCS Technical Service Provider approved for a DIA 159, 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 the Pasture Condition Scoring (PCS) assessment tool.

Documentation and Implementation Requirements

Participant will:

- 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
 - Location and condition of structural improvements
 - Watering sites with availability, quantity, and quality
 - Forage inventory
 - Forage-animal balance sheet
 - Grazing plan for livestock movement
 - Contingency plan
 - Monitoring plan
- During implementation, perform a soil test on the applicable acres.



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, secure a Certified Forage and Grassland Professional, Certified Range Management Consultant, Certified Professional in Range Management, NRCS Technical Service Provider approved for DIA 159, 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.
 - 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 Pasture Condition Score (PCS) assessment.

- 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 job sheet 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.
 - Soil test analysis.
 - Written documentation from professional with recommendations and follow up actions.
 - Pasture/herd in/out dates.
 - Completed forage utilization job sheet.
 - Animal/forage balance sheet.
 - Written modifications to the grazing management and monitoring plan which address the resource concerns identified from the assessment.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- As needed, provide technical additional assistance to participant as requested.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement, including forage utilization job sheet.
- Prior to implementation, provide soils information and/ or Forage Suitability Groups as requested.
- After implementation, review all Pasture Condition Score sheets and written recommendations made by professional.
- After implementation, review soil test analysis.
- After implementation, verify implementation of the grazing management plan by reviewing grazing/herd in/out records, forage utilization job sheet, animal/forage balance records and changes made to the plan 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528G

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528G the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that "stop grazing" heights are being maintained as directed in the table below.
 - No mechanical forage removal on enrolled acreage reduce carbon removal off site and maintain or increase root biomass.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native



CONSERVATION STEWARDSHIP PROGRAM

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E528G the following additional documentation requirements apply in Indiana:
 - Yearly monitoring utilizing the Indiana Pasture Condition Score (PCS) sheet located at: <https://www.nrcs.usda.gov/wps/portal/nrcs/in/home/> Technical Resources / Grazing and Forages. Initial PCS(s) will be taken between July 1 and August 15, and followup PCS(s) will be taken in July and September each year until the target **PCS of 40** is reached. Pasture Condition Score Sheet Help document is also located at: <https://www.nrcs.usda.gov/wps/portal/nrcs/in/home/> Technical Resources / Grazing and Forages
 - Copies of the completed PCS(s) will be provided to the NRCS field office.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- Disregard the terminology "rangeland" plants. These will be pasture forage species here in Indiana.
- A reference sheet will be utilized in lieu of an ecological site description to document dominant species present.
- In lieu of a forage utilization job sheet, document in the assistance notes that "stop grazing" heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.



CONSERVATION ENHANCEMENT ACTIVITY

E528H

CONSERVATION STEWARDSHIP PROGRAM

Prescribed grazing to improve/maintain riparian and watershed function-elevated water temperature

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Range, Pasture, Forest

RESOURCE CONCERN: Water

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.
- 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:
 - Clear objectives,
 - A resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
 - Grazing plan, and
 - A contingency plan.

E528H – Prescribed grazing to improve/maintain riparian and watershed function-elevated water temperature	August 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Y 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.
- Y During implementation, keep pasture/herd in/out records and grazing utilization records for key grazing areas.
- Y After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - o Written grazing plan
 - o Pasture/herd in/out records.
 - o Documented forage utilization levels

NRCS will:

- Y As needed, provide technical additional assistance to the participant as requested.
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) as it relates to implementing this enhancement.
- Y Prior to implementation, verify a grazing plan has been developed, which includes written objectives.
- Y After implementation, verify implementation of the written grazing plan by reviewing plan, pasture/herd in/out records, and utilization records kept during enhancement implementation.

E528H – Prescribed grazing to improve/maintain riparian and watershed function-elevated water temperature	August 2019	Page 3
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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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528H

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528H the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that "stop grazing" heights are being maintained as directed in the table below.
 - No mechanical forage removal on enrolled acreage reduce carbon removal off site and maintain or increase root biomass.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	4
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native



CONSERVATION STEWARDSHIP PROGRAM

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E528H the following additional documentation requirements apply in Indiana:
 - Yearly monitoring utilizing the Indiana Pasture Condition Score (PCS) sheet located at: <https://www.nrcs.usda.gov/wps/portal/nrcs/in/home/> Technical Resources / Grazing and Forages. Initial PCS(s) will be taken between July 1 and August 15, and followup PCS(s) will be taken in July and September each year until the target **PCS of 40** is reached. Pasture Condition Score Sheet Help document is also located at: <https://www.nrcs.usda.gov/wps/portal/nrcs/in/home/> Technical Resources / Grazing and Forages.
 - Copies of the completed PCS(s) will be provided to the NRCS field office.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- Disregard the terminology "rangeland" plants. These will be pasture forage species here in Indiana.
- A reference sheet will be utilized in lieu of an ecological site description to document dominant species present.
- In lieu of a forage utilization job sheet, document in the assistance notes that "stop grazing" heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.



CONSERVATION ENHANCEMENT ACTIVITY

E528I

CONSERVATION STEWARDSHIP PROGRAM

Grazing management that protects sensitive areas-surface or ground water from nutrients

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range

RESOURCE CONCERN: Water

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

- 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 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.
- 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.

E528I – Grazing management that protects sensitive areas-surface or ground water from nutrients	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 that will:
 - Minimize deposition or flow of animal wastes into water bodies or sinkholes,
 - Minimize animal impacts on stream bank or shoreline stability,
 - Provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff, and
 - 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- 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.
- After implementation, make all records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- Prior to implementation, assist the participant with development of a grazing plan and/or nutrient management plan, as requested.
- Prior to implementation, review the plan(s) if not developed by NRCS.
- Prior to implementation, review soil test analysis

E528I – Grazing management that protects sensitive areas-surface or ground water from nutrients	July 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- 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 other sensitive areas.
- After implementation, review the nutrient management plan and application record to ensure nutrients were applied according to the plan.

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528I

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528I the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that "stop grazing" heights are being maintained as directed in the table below.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times.
 - Any mechanical harvest will be the same as the stop grazing heights.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native



CONSERVATION STEWARDSHIP PROGRAM

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- A reference sheet will be utilized in lieu of an ecological site description to document dominant species present.
- Disregard the terminology "rangeland" plants. These will be pasture forage species here in Indiana.
- Similar to old enhancement E528119Z



CONSERVATION ENHANCEMENT ACTIVITY

E528J

CONSERVATION STEWARDSHIP PROGRAM

Prescribed grazing on pastureland that improves riparian and watershed function

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN: Water

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 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.

E528J – Prescribed grazing on pastureland that improves riparian and watershed function.	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 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 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.



Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

- 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.

- 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.

- Prior to implementation, a copy of the developed 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.

- After implementation, make all records available for review by NRCS to verify implementation of the enhancement.

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.

E528J – Prescribed grazing on pastureland that improves riparian and watershed function.	July 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528J

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528J the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that "stop grazing" heights are being maintained as directed in the table below.
 - Any mechanical harvest will be the same as the stop grazing heights.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native



CONSERVATION STEWARDSHIP PROGRAM

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- A reference sheet will be utilized in lieu of an ecological site description to document dominant species present.
- Similar to old enhancements E528122Z, E528126Z, and E528118Z1



CONSERVATION ENHANCEMENT ACTIVITY

E528L

CONSERVATION STEWARDSHIP PROGRAM

Prescribed grazing that improves or maintains riparian and watershed function-erosion

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range, Forest

RESOURCE CONCERN: Soil

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 grazing 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:
 - Clear objectives,
 - A resource inventory of structural improvements, existing resource conditions, and forage.
 - A monitoring plan
 - A contingency plan

E528L – Prescribed grazing that improves or maintains riparian and watershed function-erosion	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Supplemental feed 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 or browsing so as to provide adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff.
- Maintain adequate ground cover and plant density through monitoring to retain or improve filtering capacity of the vegetation by moving livestock appropriately.
- Adjust grazing strategy and rest as needed with the right numbers, class, and kind of livestock 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:

- Prior to implementation, obtain a written grazing plan with:
 - Inventory of structural improvements, existing resource conditions and forage
 - Guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand of livestock
 - A contingency plan and
 - A monitoring plan
- During implementation, keep pasture/herd in/out records and forage-animal balance sheet.
- During implementation, monitor riparian vegetation for use
- After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - Written grazing plan
 - Pasture/herd in/out records
 - Documented utilization records
 - Monitoring plan

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.

E528L – Prescribed grazing that improves or maintains riparian and watershed function-erosion	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- After implementation, verify implementation of the written grazing plan, by reviewing plan and pasture/herd in/out records and forage-animal balance sheets kept during enhancement implementation.
- After implementation, review the monitoring plan

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528L

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528L the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that "stop grazing" heights are being maintained as directed in the table below.
 - No mechanical forage removal on enrolled acreage.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.



^{2/} Overwintering heights are ideally not reached until forages have become dormant.

CONSERVATION STEWARDSHIP PROGRAM

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.





CONSERVATION ENHANCEMENT ACTIVITY

E528M

CONSERVATION STEWARDSHIP PROGRAM

Grazing management that protects sensitive areas from gully erosion

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range

RESOURCE CONCERN: Soil

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.
- 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.
- 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 that includes:
 - Clear objectives,
 - A resource inventory of structural improvements, existing resource conditions, and forage.

E528M - Grazing management that protects sensitive areas from gully erosion	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- A monitoring plan
- A contingency plan
- Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover.
- Minimize deposition or flow of animal wastes into water bodies or sinkholes,
- Minimize animal impacts on stream bank or shoreline stability,
- Maintain adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff, and
- Maintain 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.



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. Plan will include a contingency plan for potential events that trigger adverse results, such as concentrated flow and gully erosion.
- Prior to implementation, develop a map delineating potential sensitive areas to be protected.
- During implementation, keep livestock herd management records during seasonally important periods of soil erosion potential.
- During implementation, keep grazing utilization records for key grazing areas that accommodate the criteria above, indicating the protective nature of the grazing system to the sensitive areas.
- After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
 - Written grazing plan.
 - Pasture/herd in/out records
 - Documented utilization records.

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.
- Prior to implementation, as needed, assist participant with the development of map delineating potential sensitive areas to be protected.



CONSERVATION STEWARDSHIP PROGRAM

- 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 and utilization records kept during kept during enhancement implementation.
- After implementation, verify 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528M

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528M the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that "stop grazing" heights are being maintained as directed in the table below.
 - No mechanical forage removal on enrolled acreage.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.



^{2/} Overwintering heights are ideally not reached until forages have become dormant.

CONSERVATION STEWARDSHIP PROGRAM

Notes and comments on this National Enhancement:

- Disregard the terminology "rangeland" plants. These will be pasture forage species here in Indiana.
- A reference sheet will be utilized in lieu of an ecological site description to document dominant species present.





CONSERVATION ENHANCEMENT ACTIVITY

E5280

CONSERVATION STEWARDSHIP PROGRAM

Clipping mature forages to set back vegetative growth for improved forage quality

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Timely clipping of mature forages through mowing, swathing or some other mechanical cutting will occur to increase forage palatability by setting plants back to a vegetative state for improved grazing management and forage quality

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Maintain diversity of forage 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 forage inventory, structural improvements and existing resource conditions, 3) Grazing plan, and 4) All potential contingency plans.
- 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.

E5280 –Clipping mature forages to set back vegetative growth for improved forage quality	April 2021	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Timely clipping of mature forage species through mowing, swathing or some other mechanical cutting will occur to set back the vegetative state of the forage species.
- Excessive stems shall be removed during the cutting process to allow sunlight to reach the lower plant canopy.
- Cut forage species to a stubble height that will promote the vigor and health of the species and maintain stem bases that store food reserves for full vigorous recovery. **Follow NRCS state conservation practice standard recommendations.**
- Clipping should be avoided when forage is entering dormancy. Cutting heights should maintain insulation for extreme heat or cold. Use **NRCS** and local Cooperative Extension Service recommendations **on dates and stages** to avoid winterkill in cold climates.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Y 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
 - Location and condition of structural improvements
 - Watering sites with availability, quantity and quality
 - Forage inventory
 - Forage-animal balance sheet
 - Grazing plan for livestock movement
 - Contingency plan
 - **Monitoring plan**
- Y Prior to implementation, identify grazing areas and locations where clipping mature forages will occur
- Y Prior to implementation, provide a plan for mechanical clipping and livestock movement activities to NRCS
- Y During implementation keep a record of clipping activities and livestock movement
- Y During implementation, monitor forage maturity stages and livestock condition
- Y During implementation, keep record of clipping heights
- Y During implementation, take photos of areas immediately **before and** after clipping
- Y After implementation, provide the following items for review by NRCS:
 - Map and records showing clipping areas
 - Forage-animal balance sheet
 - Records of livestock movement through clipping areas
 - Documentation of clipping heights
 - Written modifications to grazing management plan based on results of clipping forages
 - Photos of fields **before and** after clipping activities
 - Notify NRCS immediately after clipping

E5280 –Clipping mature forages to set back vegetative growth for improved forage quality	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Y As needed, provide technical assistance to participant as requested
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage Harvest Management (CPS 511)
- Y Prior to implementation, review the plan provided for livestock movement and mechanical clipping
- Y After implementation, review the map, record of livestock movement, clipping activities and heights and photos.
- Y After implementation, review the modifications to the grazing management plan based on results of clipping forages

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

E5280 –Clipping mature forages to set back vegetative growth for improved forage quality	August 2019	Page 4
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E5280

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E5280 the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below.
 - Follow IN FOTG 511, Forage Harvest Management if mechanically harvested.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.



^{2/} Overwintering heights are ideally not reached until forages have become dormant. No restrictions on post dormancy grazing heights on tall fescue dominant pastures where runoff is not a resource concern.

CONSERVATION STEWARDSHIP PROGRAM

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- In lieu of a forage utilization job sheet, document in the assistance notes that "stop grazing" heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.
- Fecal samples should be collected starting in mid-June and continued on a monthly basis until the six samples are taken.
- Reference: <http://cnrit.tamu.edu/ganlab/index.php>



CONSERVATION ENHANCEMENT ACTIVITY

E528P

CONSERVATION STEWARDSHIP PROGRAM

Implementing Bale or Swath Grazing to increase organic matter and reduce nutrients in surface water.

Conservation Practice 528: Prescribed Grazing

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

RESOURCE CONCERN: Soil, Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Improve organic matter, aggregate stability and soil organism habitat in the soil by leaving the biomass harvested from the field on site for animal use, or supplementing organic matter needs with off-field forages. Grazing harvested forages in this manner, will help to incorporate organic matter, feed and diversify the soil microbiome, build better aggregation and increase soil health and critical functions such as infiltration, nutrient cycling, and weather resilience. Forages should be placed evenly throughout the field, but can be concentrated in areas where particular concerns, such as bare ground, need to be remedied. Decisions of forage placement must take into account areas that would be sensitive to such activity such as protecting surface waters from nutrients or steep slopes from erosion.

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Graze harvested forages to help incorporate organic matter into the soil and 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

E528P - Implementing Bale or Swath Grazing to increase organic matter and reduce nutrients in surface water	May 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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) All potential contingency plans.

- Supplemental feed and/or minerals will be provided as needed to meet the nutritional requirements of the kind and class of grazing and/or browsing livestock.
- Forage access should be designed to meet the objective of the identified resource concern(s) of the field and may be concentrated in areas where concerns, such as bare ground, need to be remedied. Decisions of forage placement must consider areas that would be sensitive to such activity such as protecting surface waters from nutrients or steep slopes from erosion. **Bales may be unrolled if this design more effectively addresses the resource concern.**
- Baling and swathing on fields where this enhancement is applied should meet stubble heights found in NRCS Conservation Practice Standard Forage Harvest Management (Code 511).
- Off-field forages used should not contain noxious or invasive weeds.
- Test soil annually to monitor build-up of excessive nutrient levels. Select sites with low to moderate soils test to supplement organic matter and provide nutrients. Avoid sites with already high nutrient levels. Consideration soil texture constraints for bale locations.
- All non-degradable bale material must be removed from the field when bales are gone.
- Use electric fencing or separate paddocks to control livestock access to bales or swaths to ensure forages are used efficiently.



CONSERVATION STEWARDSHIP PROGRAM

Considerations:

- Bales with plastic twine should be placed on their ends to facilitate removal of twine prior to feeding. Net wrap may be left on to assist with controlled feeding.
- Design the size of area or number of bales or swaths to provide enough feed for the livestock for the desired period. (usually 2-5 days). Example:

Average weight of round bale: 900 #

Dry Matter (% dry × bale weight): $900\# \times 85\% = 765\#$

Loss for storage and feeding waste ($765\# \times 75\%$) = 574# DM/Bale

$574\# \text{ DM} \div 30\# \text{ DM/Cow/Day} = 19$ cows would use one round bale per day

$100 \text{ cows} \div 19 \text{ cows/round bale/day} = 5.2$ bales per day to feed the herd

$5.2 \text{ bales per day} \times 90 \text{ days} = 468$ bales

$468 \text{ bales} \div 25 \text{ bales per acre} = 19$ acres needed to bale graze.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

Y Prior to implementation, acquire a Grazing Management Plan on field(s) where swath or bale grazing is planned and provide to NRCS for review and approval. Plans must include all the following components:

- Producer goals, objectives and resource concerns
- Location and condition of structural improvements
- Watering sites with availability, quantity and quality
- Forage inventory
- Forage-animal balance sheet
- Grazing plan for livestock movement
- Contingency plan
- Monitoring plan
- Calculations for determining number of bales or swath rows needed:
 1. Herd size: _____
 2. Average bale weight or swath production (pounds per acre): _____
 3. Average forage Dry Matter (DM)% _____
 4. Average DM # Intake/Cow/Day _____
 5. Number of bales or swath row area needed per day: _____
 6. Spacing of bales (if applicable) based on local criteria _____
 7. Duration of bale or swath grazing (days) _____
 8. Acres needed for bale or swath grazing period: _____

Y Prior to implementation, identify location(s) where bale or swath grazing will occur and proximity to sensitive areas such as surface water and soil and drainage limitations.

Y Prior to implementation, provide current soil test results (no older than 2 years) in identified areas for bales or swaths to NRCS.

Y During implementation record location(s) of bale placement or swathing.

Y During implementation, keep records of livestock movement through bale or swathing areas.

Y During implementation, monitor livestock condition and feed quality.

Y During implementation, record swathing or mowing heights.

Y After implementation, provide the following items for review by NRCS:

- A map showing bale or swath grazing areas.
- Forage-animal balance sheet
- Records of livestock movement through bale or swathing areas.

E528P - Implementing Bale or Swath Grazing to increase organic matter and reduce nutrients in surface water	May 2020	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- Records of swathing or mowing heights.
- Written modifications to grazing management plan based on results of prior bale/swath grazing season and soil test results

NRCS will:

- Y As needed, provide technical assistance to participant as requested
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) and supporting documents that are needed to implement this enhancement, such as forage-animal balance forms
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage Harvest Management (Code 511) stubble height requirements
- Y Prior to implementation, provide assistance with bale spacing recommendations and calculations for determining number of bales or swath rows needed
- Y Prior to implementation, review soils test results for identified on bale/swath grazing areas
- Y After implementation, review map and locations of bale/swath grazing areas
- Y After implementation, review records of livestock movement through bale/swath grazing areas
- Y After implementation, review forage-animal balance sheet
- Y After implementation, review records of mowing/swathing heights
- Y After implementation, review modifications made to the grazing management plan

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528P

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528P the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage that is to be grazed and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stocking rates will be managed to ensure that adequate live cover and residual is maintained at all times.
 - Any mechanical harvest will be the same as the stop grazing heights.
 - If hay bales are fed in field, soil conditions will be favorable and not cause excessive compaction or soil disturbance and ideally on frozen or dry ground.
 - Any hay fed in the field will not be fed in such a manner or in such an amount to hinder desired species growth the subsequent season.
 - Any hay fed in the field will not be fed when access or delivery of hay or baleage will cause rutting or erosion.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.



CONSERVATION STEWARDSHIP PROGRAM

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.



CONSERVATION ENHANCEMENT ACTIVITY

E528Q

CONSERVATION STEWARDSHIP PROGRAM

Use of body condition scoring for livestock on a monthly basis to keep track of herd health

Conservation Practice 528: Prescribed Grazing

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Body condition scoring (BCS) serves as a useful management tool to monitor livestock performance with respect to current and recent feeding or grazing programs. Body condition scoring is a numeric scoring system, producers can use to consistently evaluate animals' estimated body energy reserves through degree of fatness. This information can be used to adjust nutritional strategies to reach optimal BCS. Since body condition is closely associated with reproductive performance as well as feed efficiency, monitoring body condition can help producers reach production goals and increase the operation's bottom line. Knowledge and understanding of BCS will assist producers to adjust a supplemental feeding program to maintain animal health and nutrition on a-monthly-basis.

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- A written plan for maintaining diversity of forage plants to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration

E528Q – Use of body condition scoring for livestock on a monthly basis to keep track of herd health	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

of grazing and/or browsing needed as determined through the planning process with: 1) Clear objectives, 2) A resource inventory including forage inventory, structural improvements and existing resource conditions, 3) Grazing schedule, and 4) All potential contingency plans.

- A written plan to monitor and document Body Condition Scores monthly using Land Grant University Scoring Guidelines.
- Supplemental feed and/or mineral will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- Animals must maintain ideal/Land Grant University recommended BCS for their breed, phase of production, or livestock type. (animals should not be emaciated to thin, or fat to obese).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, acquire a Grazing Management Plan with all the following components: (provide plan to NRCS for review and approval)
 - Producer goals and objectives
 - Location and condition of structural improvements
 - Watering sites with availability, quantity and quantity
 - Forage inventory
 - Forage-animal balance sheet
 - Grazing plan for livestock movement
 - Contingency plan
 - Monitoring plan
- Prior to implementation, develop a written BCS monitoring plan
- During implementation keep a record of livestock movement and BCS of livestock type, breed and phase of production
- During implementation, keep a record of supplemental feeding
- During implementation, take photos of livestock from several representative animals. Photos should be taken of the side with the entire animal in the picture frame
- After implementation, provide the following items for review by NRCS:
 - Map of paddocks used
 - Forage-animal balance sheet
 - Records of livestock movement through paddocks
 - BCS monitoring plan with livestock photos
 - Supplemental feeding plan
 - Written modifications to grazing management plan based on results of BCS monitoring and supplemental feeding program

NRCS will:

- As needed, provide technical assistance to participant as requested
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement

E528Q – Use of body condition scoring for livestock on a monthly basis to keep track of herd health	August 2019	Page 3
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528Q

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528Q the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below.
 - Follow IN FOTG 511, Forage Harvest Management if mechanically harvested.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.
 - The Pasture Condition Score (PCS) for indicator “Live Plant Cover” will be maintained at 4 points or higher. Indicator “Percent Desirable Plants” maintained at 4 points or higher, and indicator “Plant Vigor” at 4 points or higher.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native



CONSERVATION STEWARDSHIP PROGRAM

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant. No restrictions on post dormancy grazing heights on tall fescue dominant pastures where runoff is not a resource concern.

Notes and comments on this National Enhancement:

- Consult with the State Agronomist/Grazing Specialist for more information.
- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- In lieu of a forage utilization job sheet, document in the assistance notes that "stop grazing" heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.
- Fecal samples should be collected starting in mid-June and continued on a monthly basis until the six samples are taken.
- Reference: <https://cnrit.tamu.edu/index.php/ganlab/>



CONSERVATION ENHANCEMENT ACTIVITY

E528R

**CONSERVATION
STEWARDSHIP
PROGRAM**

Management Intensive Rotational Grazing

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture, Range

RESOURCE CONCERN ADDRESSED: PLANTS

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Management intensive, multi-paddock grazing system where livestock are regularly and systematically moved to fresh forage to optimize quantity and quality of forage growth, improve manure distribution, improve wildlife cover, and improve soil health.

Criteria

- Management-intensive rotational grazing increases harvest efficiency of vegetation with grazing and/or browsing animals through smaller paddock sizes, higher stock density while maintaining plant residue with enough energy reserves to recover quickly when adequate soil moisture is available for regrowth.
- Must develop and implement a written grazing plan that:
 - increases stock density
 - shortens grazing periods
 - enhances plant recovery
 - matches the forage quantity and quality produced with the grazing and / or browsing animal, and

E528R – Management Intensive Rotational Grazing	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- increases harvest efficiency and manure distribution by significantly increasing the existing stock density per herd.
- Removal of forage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants and the nutritional needs of the livestock.
- Deferment (non-grazing period less than one year) and / or rest (non-grazing period equal to or greater than one year) will be planned for critical periods of plant needs.
- Manage livestock rotation based on rate of plant growth, available forage, and allowable utilization target.
- Manage livestock rotation to provide adequate ground cover and plant density to decrease soil erosion, reduce runoff and improve infiltration and water holding capacity.
- Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover.
- Utilize higher stock density and shorter grazing periods in riparian areas to minimize impact to stream bank or shoreline stability and ensure other sensitive areas such as wetlands, habitats of concern, karst areas do not become degraded.
- Implement and maintain a rotational grazing system using a combination of permanent or temporary division fences and water facilities to serve the management needs of operation.
- Develop and follow contingency plans to deal with drought or flooding or other episodic disturbance events.

Develop and implement a monitoring plan that at a minimum evaluates livestock performance, plant community composition and density, and soil function components such as ground cover, infiltration and aggregate stability.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementing, obtain a grazing plan map delineating the existing paddock system, along with a livestock inventory (type, class, average weight, and number) to document the current stocking density and current stocking rate.
- Prior to implementation, acquire a prescribed grazing plan, with a plan narrative delineating the following:
 - The goals and objectives of the plan
 - Map showing the number of paddock subdivisions with water sources, proposed stock densities per paddock associated with different herds in the system.
 - Forage Inventory
 - Forage / Animal Balance
 - A grazing plan narrative describing the basis for when livestock movement or rotation will occur
 - A contingency plan
 - A monitoring plan
- During implementation, keep pasture/ herd in/out records, stock density records and photos of paddock condition and photos of high stock density grazing implementation.
- After implementation, provide the following items for review by NRCS:
 - Written grazing plan with maps showing fencing and water layout and managed stock densities for each herd.
 - Paddock / herd in / out records with actual stock densities documentation.
 - Photos of paddock(s) condition and improved forage utilization and photos of high stock density grazing.
 - Changes made to the grazing management plan.

NRCS will:

E528R – Management Intensive Rotational Grazing	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- As needed, provide technical assistance to participant as requested.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) and supporting documents that are needed to implement this enhancement, such as forage-animal balance forms.
- Prior to implementation, review the existing grazing plan, maps and livestock inventory provided by the participant.
- Review the newly proposed grazing plan fencing and watering layout, associated maps and stock density numbers for each herd.
- After implementation, review the following:
 - Written grazing plan with maps showing fencing and water layout and managed stock densities for each herd.
 - Paddock / herd in / out records with actual stock densities documentation.
 - Photos of paddock(s) condition and improved forage utilization and photos of high stock density grazing.
 - Changes made to the grazing management plan

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 _____



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528R

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528R the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below.
 - Follow IN FOTG 511, Forage Harvest Management if mechanically harvested.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.
 - Stop grazing heights may appear shorter than actual stop grazing heights when using high density short duration grazing. The amount of residual left behind will be the same. Bare soil should be minimal. The Pasture Condition Score (PCS) for indicator “Plant Residue and Litter as Soil Cover” will be maintained at 4 points or higher. The PCS indicator “Live Plant Cover” will be maintained at 3 points or higher.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12



CONSERVATION STEWARDSHIP PROGRAM

Riparian and or Sensitive Areas	6	6 or 12 if native
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^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.

^{2/} Overwintering heights are ideally not reached until forages have become dormant. No restrictions on post dormancy grazing heights on tall fescue dominant pastures where runoff is not a resource concern.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU’s.
- In lieu of a forage utilization job sheet, document in the assistance notes that “stop grazing” heights are being maintained as directed in the IN FOTG 528 – Prescribed Grazing Standard.
- Fecal samples should be collected starting in mid-June and continued on a monthly basis until the six samples are taken.
- Reference: <https://cnrit.tamu.edu/index.php/ganlab/>



CONSERVATION ENHANCEMENT ACTIVITY

E528S

Soil Health Improvements on Pasture

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN ADDRESSED: Soil

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Use of soil health assessment to evaluate impact of planned grazing in addressing organic matter depletion, soil organism habitat and aggregate instability. Laboratory soil health tests will be completed in year 1 and year 4 of the contract. Planned modifications to the pasture forages and/or management system will be made to the benchmark grazing system to address concerns from the assessments. During sample collection, Pasture Condition Score (PCS) or Determining Indicators of Pasture Health (DIPH) assessment will be completed for the sample area.

Criteria

- Utilizing the benchmark PCS or DIPH, the participant will plan improvements to at least one of the indicators. The benchmark PCS or DIPH will be less than one year old.
- A primary assessment will be completed in Year 1 that includes completing the PCS or DIPH and sampling soil that will be analyzed by a soil health testing laboratory. Follow guidance from Technical Note No. 450-03 to select indicators (soil organic carbon, aggregation, bioavailable nitrogen, respiration, and/or active carbon) and for sampling procedure. Record weather factors and most recent grazing event on the PCS or DIPH. Soil sample collection and PCS or DIPH will be completed on the same day and in the same location.

E528S – Soil health improvements on pasture	March 2021	Page 1
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- During Year 4, a follow-up assessment will be completed using the same methods that were utilized in year 1. The assessment will be in the same season, comparable conditions and key area as completed in year 1.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation:
 - Provide NRCS with the benchmark grazing information.
 - Develop a prescribed grazing plan.
 - Select the laboratory soil health test and provider based on your soil health objectives.
- During implementation:
 - Complete PCS or DIPH or work with someone qualified to complete the pasture assessment when soil samples are collected.
 - Collect soil samples and georeferenced sampling locations in years 1 and 4 of the contract and send them to a reputable soil testing lab that completes soil health testing. Year 1 and year 4 soil samples will be tested by the same laboratory.
 - Make changes to the grazing management plan based on results of PCS or DIPH and soil health test to benefit organic matter depletion, soil organism habitat and/or aggregate instability.
- After implementation provide the following items for review by NRCS:
 - PCS or DIPH score sheets with all field notes and locations.
 - Both Soil Health Assessment results to NRCS.
 - Changes made to the grazing management plan for the year.

NRCS will:

- As needed, provide any technical assistance to participant as requested.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement.
- Prior to implementation, and as requested from the participant, develop a Prescribed Grazing plan for each year of this enhancement.

E528S – Soil health improvements on pasture	March 2021	Page 2
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- During implementation, assist the producer with locating the key area for the PCS or DIPH and soil samples to be collected.
- During implementation, as requested work with the producer to complete PCS or DIPH and collect the soil samples.
- After implementation, review all PCS or DIPH and all soil health laboratory testing results.
- After implementation, verify implementation of changes made to the grazing management plan to address organic matter depletion, soil organism habitat and/or aggregate instability and other identified indicators from the PCS or DIPH by reviewing grazing herd in and out records or implementation of additional activities.

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



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E528S

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E528S the following additional criteria apply in Indiana:
 - Laboratory soil health tests that assist in assessing soil health resource concerns such as soil organic matter depletion, soil organism habitat degradation and/or aggregate instability include:
 - Soil Organic Carbon testing, Active Carbon testing, Respiration measurements, wet macro-aggregate stability and organic nitrogen availability testing
 - Not all soil health tests are required for this enhancement, just the tests needed to support your soil health objectives

The [PCS Guide](#) and PCS worksheet can be found in the [eFOTG](#), Section III/Resource Concern List and Planning Criteria



CONSERVATION ENHANCEMENT ACTIVITY

E528U

CONSERVATION STEWARDSHIP PROGRAM

Contingency Planning for Resiliency

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Crop (Annual and Mixed), Crop (Perennial), Pasture, Range, Forest

RESOURCE CONCERN: Animal, Plant

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Develop and implement detailed contingency plans that address major disturbances (drought, fire, flooding, insect infestations, etc) for grazing lands on the operation. Incorporate drought or other weather forecasting tools and agency approved climate projections within the contingency plans. Incorporate resilience building techniques in the grazing plan to mitigate effects of major disturbances.

Criteria

- Develop a written plan that matches forage quality and quantity to grazing and/or browsing animal demands for **the entire year** (both growing and non-growing season). This would include both grazed, stored and fed feed, and other grazing resources. (Not all acres may need to be contracted, but this would cover the entire season when animals are on-farm). Recommended strategies could be:
 - Incorporate longer rest periods to increase recovery of grazing resources and improve resiliency after drought events or other major disturbances.
 - Utilize non-traditional grazing resources such as annual forages, crop residues, perennial cropland (hayland), etc. when developing a year-round grazing plan.



CONSERVATION STEWARDSHIP PROGRAM

- Maintain conservative stocking rates as a drought contingency strategy to minimize detrimental consequences during drought on economic and ecological sustainability (when applicable).
- Incorporate other technologies such as bale grazing on hayland, degraded rangeland, or cropland to improve resiliency by increasing organic matter etc.
- Incorporate other strategies as recommended by local NRCS or other grazing experts from the region.
- Enhance diversity of rangeland plants to optimize grazing unit resiliency by managing the intensity, frequency, timing, and duration of grazing and/or browsing needed as determined by a planning process that includes:
 - Clear objectives,
 - Resource inventory of structural improvements, existing resource conditions, forage inventory including all grazable acres on operation,
 - Grazing plan,
 - Contingency plan, and
 - Monitoring plan.
- Develop a written contingency plan that includes the following:
 - Type of contingency planned for (drought, fire, flood, insect infestation, etc.),
 - Trigger points (or dates) for making stocking rate decisions,
 - Types, locations, and information for available additional forage resources (purchased or stockpiled hay, grazing cropland resources, off-farm forage resources, etc.),
 - Culling procedures (if any) (including all stages of animals in animal inventory, i.e., cow/calf, stockers, yearlings, bulls, ewe/lambs, rams, etc.; and time frame when to market during what conditions etc.),
 - Judicious use of local or national drought forecasting tools to inform trigger date decisions (GrassCast, SD Drought Tool, etc.), and



CONSERVATION STEWARDSHIP PROGRAM

- Use of drought forecasting tools and soil water forecasts where available to promote the accuracy of forage production projections. See supplemental information for local resources (if any).
- Implement contingency plan (when needed) and develop new updated contingency plan as conditions change (this is an ongoing process).
- Develop a monitoring plan that helps measure resiliency on the operation. This should include each of the following subcategories:
 - Soil monitoring techniques such as soil tests for organic matter, PLFAs, Haney test, etc.
 - Includes monitoring techniques to determine soil cover.
 - Soil cover should be compared to an Ecological Site Description or Rangeland Health Evaluation matrix to determine if the amounts present are appropriate for the site.
 - Plant species diversity monitoring techniques.
 - Any other appropriate monitoring techniques to help determine positive changes in site resiliency.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, review NRCS Conservation Practice Standards Prescribed Grazing (Code 528), including any state approved job sheets or worksheets.
- Prior to implementation work with NRCS to complete a forage inventory of operational resources.
- Prior to implementation provide locations of fence, watering facilities and infrastructure, additional non-traditional grazing resources, etc.
- During implementation, keep records of actual use (dates, grazing/browsing period, number of head).
- During implementation, collect monitoring data for use to determine trigger dates, such as precipitation data, fire occurrences, flooding occurrences, forage availability, etc.
- During implementation, consult with NRCS to adjust and adapt the plan to current conditions to verify changes needed to meet enhancement criteria. Changes to the plan will be documented in writing.
- After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
 - Grazing management plan,
 - Contingency plan,
 - Monitoring data and actual use records, and
 - Any documented changes to the plan as result of drought contingency plan or monitoring data.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- As needed, provide technical assistance to the participant as requested.
- Prior to implementation, provide and explain NRCS Conservation Practice Standards Prescribed Grazing (Code 528) as they relate to implementing this enhancement, including any state approved job sheets or work sheets.
- 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 contingency planning and resilience.
- 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.

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

E533A

CONSERVATION STEWARDSHIP PROGRAM

Advanced Pumping Plant Automation

Conservation Practice 533: Pumping Plant

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

RESOURCE CONCERN: Water

PRACTICE LIFE SPAN: 1 year

Enhancement Description

This enhancement consists of installing a control device to a pump station that allows the user to remotely monitor and operate the pump station based on field measured data. Pumping stations may have either a combustible or electric power unit that are compatible with the control device or sensor. These devices/sensors collect field-measured data and provide this data in real time to the landowner to make irrigation decisions and adjustments to the pump operation. These decisions should be made in conjunction with an irrigation water management plan. Field measuring devices may be part of the IWM plan, but additional devices can be installed as part of the enhancement such as water level, fuel level, pressure, or speed control sensors.

Criteria

- Documentation that ensures the control devices is compatible with the exiting pump station and irrigation system
- Detailed drawings of how the control device will connect to the existing pump station
- Protective structure/mechanism
- Irrigation water management (IWM) plan that follows the NRCS Conservation Practice Standard Irrigation Water Management (CPS449)
- Components necessary for automation depends on the type of pump installed, but both electric and combustible system should have a flow meter as indicated below:
 - Electrical power unit- flow meter with data logger and telemetry, necessary circuit boards and protections, VFD (if applicable), antenna, modem, housing, and other appurtenances as applicable



- Diesel power units- flow meter with data logger and telemetry, necessary circuit boards and protections, antenna, modem, housing, fuel use meter, and other appurtenances as applicable.

CONSERVATION STEWARDSHIP PROGRAM





Documentation and Implementation Requirements

Participant will:

Prior to implementation

- Completed IWM plan, documenting guidance and landowner decision using State specific protocol
- Map delineating the location of the installed pumping plants, soil moisture sensors, electronic water level sensors, pipeline networks, permanent flow meters and fields they serve. All components should be capable of telemetry
- Digital/Printed photography of installed components and GPS location

During implementation

- Provide documentation ensuring that the control device and supporting appurtenances allow the pumping station to continue to operate safely and in the range of designed operating conditions
- Provide documentation of the protective structure(s) meet the requirement of the control device and supporting appurtenances. Ensure that the protective structures meet NRCS standards
- Record each irrigation event, and daily soil moisture/water level (if applicable) throughout growing season.
- Apply irrigation water based on irrigation scheduling method selected to meet the crop's needs and maximize irrigation water efficiency.
- Measure and record the amount of water used to irrigate as it comes onto the farm and is applied to each field.

After implementation

- Copy of the record each irrigation event, and daily soil moisture/water level (if applicable), and rainfall throughout growing season.

NRCS will:

Prior to implementation

- Provide and explain NRCS Conservation Practice Standard Pumping Plant (Code 533) as it relates to implementing this enhancement
- Provide and explain NRCS Conservation Practice Standard Irrigation Water Management (Code449) as it relates to implementing this enhancement
- Provided additional assistance to the participant as requested

**CONSERVATION
STEWARDSHIP
PROGRAM**



- Review and approve producer’s selected equipment

After Implementation

- Verify installation of the control device and all supporting appurtenances
- Verify that the control device is compatible with the pumping station and the range of operation condition
- Verify implementation of 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 ENHANCEMENT ACTIVITY

E533B

CONSERVATION STEWARDSHIP PROGRAM

Complete pumping plant evaluation for energy savings

CONSERVATION PRACTICE: 533 - Pumping Plant

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

RESOURCE CONCERN: Energy

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Evaluation of all pumping plants to determine the potential to rehabilitate/replace/reconfigure pump performance to reduce energy use. Evaluate to determine if a Variable Frequency Drive motor controller(s) will reduce energy use and is feasible.

Criteria

- Pump test evaluation will include all irrigation pumps on the on fields where the 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.



Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

Prior to implementation:

- Provide NRCS with a map showing the location of all fields and pumps connected to the irrigation system.
- Arrange for pump test evaluations of all irrigation pumps on fields where activity is implemented.

During implementation

- Have a pump test evaluation performed on all irrigation pumps that service the fields where activity is implemented.

After implementation

- Make the following items available for review by NRCS to verify implementation of the enhancement:
 - 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 Pumping Plant (Code 533) to participant as it relates to implementing this enhancement.
- As needed, provide additional technical assistance to the participant as requested.

After implementation

- Verify pump test evaluation, by reviewing evaluation report.
- Verify energy savings based on system efficiency before and after 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

E533C

CONSERVATION STEWARDSHIP PROGRAM

Install VFDs on pumping plants

CONSERVATION PRACTICE: 533 - Pumping Plant

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

RESOURCE CONCERN: Energy

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Install Variable Frequency Drive(s) (VFD) on Pumping Plant with the correct sensors, on all pumps as indicated in the evaluation.

Criteria

- Implement recommendations for components from a pumping plant evaluation where the FVD is feasible, reduces energy use, and the existing or new electric drive unit will support the VFD.
- The replacement or retrofit system and related components or devices meet or exceed currently applicable federal, state, and local standards and guidelines.
- Components of this enhancement will meet the NRCS Conservation Practice Standard Pumping Plant (Code 533).



Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

Prior to implementation:

- Review pumping plant evaluation, season of use, existing pump motor needs, and current operation.
- Evaluate site specific energy alternatives and net benefit of the Variable Frequency Drive(s).
- Ensure that energy utility provider has reviewed and approved location of installation on pump motor, including needs for electrical harmonic filter.
- 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 to NRCS for review to verify implementation of the enhancement.
- Monitor and maintain system for the life span of the practice (10 years).

NRCS will:

Prior to implementation

- Provide and explain NRCS Conservation Practice Standard Pumping Plant (Code 533) as it relates to implementing this enhancement.
- As needed, provide additional technical assistance to the participant as requested.
- Review with the participant the costs and benefits of the installation of Variable Frequency Drive(s).
- 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.
 - Plan view showing the location of the measures in relation to other structures or natural features, where appropriate.
 - Electrical wiring that meets the requirements of the National Electrical Code.
 - Operation and maintenance plan that is consistent with the purpose(s) of this practice, its intended life, and safety requirements.



CONSERVATION STEWARDSHIP PROGRAM

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

E533D

CONSERVATION STEWARDSHIP PROGRAM

Switch fuel source for pumps

CONSERVATION PRACTICE: 533 - Pumping Plant

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

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Switch the fuel source for the pump motor(s) to an on-farm renewable source (wind, solar, geothermal, etc.).

Criteria

- Replace an existing pump motor with a drive unit that is powered by a renewable source such as wind, solar, geothermal, etc. that can adequately maintain the existing operating conditions, flow rates and pressures.
- The replacement or retrofit system and related components or devices meet or exceed currently applicable federal, state, and local standards and guidelines.
- Components of this enhancement will meet the NRCS Conservation Practice Standard Pumping Plant (Code 533).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

Prior to implementation:

- Evaluate current operating conditions of the existing pump(s) including season of use and motor needs.
- Evaluate site specific renewable energy alternatives.
- Evaluate options during lack of production of renewable energy source.

During implementation

- Ensure installation meets federal National Electrical Code and any local or state codes.

After implementation

- Monitor and maintain system for the life span of the practice (10 years).

NRCS will:

Prior to implementation

- Provide and explain NRCS Conservation Practice Standard Pumping Plant (Code 533) as it relates to implementing this enhancement.
- As needed, provide additional technical assistance to the participant as requested.
- Review with the participant the costs and benefits of conversion to renewable energy source.
- Develop written specifications describing site specific details of installation, including:
 - The replacement or retrofit system and/or related components or devices.
 - Plan view showing the location of the measures in relation to other structures or natural features, where appropriate.
 - Method used to protect existing power provider from back feed from renewable source.
 - Electrical components that meet the requirements of the National Electrical Code.
 - Operation and maintenance plan that is consistent with the purpose(s) of this practice, its intended life, and safety requirements.



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

E570A

Enhanced Rain Gardens for Wildlife

Conservation Practice 570: Stormwater Runoff Control

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Seed or plug nectar and pollen producing plants into rain gardens to provide wildlife habitat.

Criteria

Establish habitat for Monarchs, pollinators and beneficial insects as described below:

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 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.

- 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.

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.
- 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 1 milkweed plant per 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 rain garden or immediately adjacent 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).

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 will 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.





Documentation and Implementation Requirements

Participant will:

- Take before and after photos of the rain garden.
- During implementation, purchase specified seed mix or plant materials that meet planting requirements provided by NRCS. Provide seed tags to NRCS.
- During implementation, follow habitat establishment guidance provided by NRCS.
- 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.

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, confirm installation of NRCS Conservation Practice Standard Storm Water Runoff Control (Code 570) State specifications have been met and installation of E5701A enhancement is feasible.
- Prior to implementation, provide participant with guidance to establish the planting and a site specific mix. Provide mix designs with plants suitable for pollinator and beneficial insect habitat, including larval host and nectar plants, with as many native species as practical.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Conservation Cover (Code 420).
- 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) and collect supporting documentation (seed tags, pictures) from participant.



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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E570A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E570A the following criteria apply in Indiana:
 - This Enhancement does not include the construction of the drainage swale or depression. This enhancement is intended to improve the vegetation in an existing swale, drainage depression or rain garden to benefit pollinators, monarchs or beneficial insects.
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool (primary purpose pollinator) will be used when developing seeding mixes for this practice. Mixes generated in the seeding tool, for the specific resource concerns identified, will meet the criteria of this enhancement.
 - Species selected should be suited for in the Wet-Mesic soil moisture category. Species should be tolerant of both temporary, short-duration inundation and drier conditions.
 - Any prepackaged mixes must be approved prior to seeding.
 - FOR PLUGS: At this time the Indiana Seeding Tool Wildlife Calculator does not support plugs. Plugs are a more costly than seeds, but can be a suitable alternative for small areas, less than 500 square feet, that need rapid establishment. Use the Indiana Wildlife Plug Calculator when plugs will be used.
 - Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E570A the following additional documentation requirements apply in Indiana:
 - Participants will be provided a suitable planting list, listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.



CONSERVATION STEWARDSHIP PROGRAM

- Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice.
 - If plugs are planted, an invoice showing the number of plugs and species will be presented.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on this National Enhancement

- Do not use insecticides on this planting area. In general, maintain at least a 25 foot buffer around the plantings when using pesticides.



CONSERVATION ENHANCEMENT ACTIVITY

E578A

CONSERVATION STEWARDSHIP PROGRAM

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: Animals

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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- 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.)
- Prior to implementation, obtain all necessary Clean Water Act, Section 404 permits, and other federal, state or local permits, as required.
- During implementation, use erosion control methods based upon specifications developed for the site.
- Where necessary, prior to crossing structure removal, remove upstream accumulation of sediment from behind the structure.
- 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.
- 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.
- Where appropriate, remove crossing-associated access roads or trails and restore native vegetation representative of the site.
- During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- After implementation, conduct inspections after high flows and undertake prompt actions if there is excessive streambank or streambed instability or erosion.

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement, including NRCS engineering oversight where required.



CONSERVATION STEWARDSHIP PROGRAM

- 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.
- Prior to implementation, ensure that stream will not be actively incising or down cutting after the crossing removal.
- Prior to implementation, ensure that all necessary Clean Water Act, Section 404, and other federal, state, or local permits have been acquired.
- 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).
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E578A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E578A the following criteria apply in Indiana:
 - Participant is responsible for obtaining any necessary permits for completing activities associated with this enhancement.
 - If after the removal of the crossing, it is determined streambank erosion and or instability is a concern, follow specifications in IN Field Office Technical Guide (FOTG) Standard (580) Streambank and Shoreline Protection
 - Where vegetation establishment is needed, the Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (342) Critical Area Planting. Only wildlife suitable species will be used for this enhancement.
 - Planned trees and shrubs shall be established according to IN NRCS FOTG Standard (612) Tree/Shrub Establishment
 - Control annual weeds as often as needed, not to exceed three years post-planting, using mowing, spot treatments of herbicides or other until the perennial planted species are established.
 - Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.
 - Management activities will not increase the risk of erosion or bank instability.
 - To protect endangered Indiana and Long-eared bats, no timber harvest or forest stand improvement activities shall occur within 100 feet of a perennial stream or within 50 feet of an intermittent stream. Any felling of trees greater than 3 inches in diameter will not occur between April 1 and September 30 to protect maternal colonies.
 - Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting the riparian area from livestock, machinery, and people.



CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E578A the following additional documentation requirements apply in Indiana:
 - Conservation Plan Map showing location of all existing crossing and those that are to be removed.
 - Engineering plans and specifications for the removal of existing stream crossing.
 - As-builts for removal, including before and after photographs will be provided to NRCS by the participant.
 - Where required, fence plans and specifications will be provided to the participant from NRCS.
 - Participant will provide receipts and materials list once fence is constructed.
 - As-builts for the fence will be completed prior to payment and included in the contract folder.
 - Where required, participants will be provided Job Sheets from the Seeding Tool listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on this National Enhancement

None



CONSERVATION ENHANCEMENT ACTIVITY

E580B

CONSERVATION STEWARDSHIP PROGRAM

Stream corridor bank vegetation improvement

Conservation Practice 580: Streambank and shoreline protection

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 20 years

Enhancement Description

Stream corridor bank vegetation components are established to improve ecosystem functioning and stability.

Criteria

- This enhancement can be applied to streambanks and adjacent floodplain/riparian area of natural channels where the channel is susceptible to erosion.
- Stream corridor vegetative components shall be established as necessary for ecosystem functioning and stability. The appropriate composition of vegetative components is a key element in preventing excess long-term channel migration in re-established stream corridors.
- Establishment of vegetation on channel banks and associated areas shall also be in accordance with NRCS Conservation Practice Standard Critical Area Planting (Code 342).
- Utilize vegetative species that are native and/or compatible with local ecosystems. Avoid introduced, invasive, noxious or exotic species that could become nuisances.
- Select plant materials that provide habitat requirements for desirable wildlife and pollinators.

E580B-Stream corridor bank vegetation improvement	July 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Treatments shall be designed to achieve habitat and population objectives for fish and wildlife species or communities of concern as determined by a site-specific assessment or management plan. Objectives shall be based on the survival and reproductive needs of populations and communities, which include habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors and native plant communities.
- The type, amount, and distribution of vegetation shall be based on the requirements of the fish and wildlife species or communities of concern to the extent possible.
- Treatments shall be designed to meet aesthetic objectives as determined by a site-specific assessment or management plan. Aesthetic objectives shall be based on human needs, including visual quality, noise control, and microclimate control.
- Construction materials, grading practices, and other site development elements shall be selected and designed to be compatible with adjacent land uses.
- Treatments shall be designed to achieve recreation objectives as determined by a site-specific assessment or management plan. Safety requirements shall be based on type of human use and recreation objectives.
- Livestock exclusion shall be considered during establishment of vegetative treatments and appropriate grazing practices applied after establishment to maintain plant community integrity. Wildlife may also 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.
- Design the stream corridor and bank vegetation enhancement for an expected life of at least 20 years.



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 Standards Streambank and Shoreline Protection (Code 580) and Critical Area Planting (Code 342). (NRCS will provide technical assistance, as needed.)
- Prior to implementation, select a combination of deep-rooted trees and shrubs appropriate for preventing bank erosion, promoting sedimentation, and limiting long-term channel migration. These plant materials should also provide habitat for wildlife, pollinators, and fish species as determined by a site-specific assessment or management plan (NRCS will provide technical assistance, as needed.)

Plant Species / Type	Number	Planted for what wildlife, pollinators, fish:

- Prior to implementation, select arrangement and spacing design to maximize erosion control and planting techniques and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

TASKS	Species/Type	Species/Type	Species/Type	Species/Type	Species/Type
Planting Date					
Planting Technique					
Arrangement/Spacing					

- During implementation, use erosion control methods based upon specifications developed for the site.
- After implementation, protect the area from livestock until vegetation is well-established, and, if necessary, control wildlife access within state and local regulations.
- After implementation, conduct inspections after high flows and undertake prompt actions if there is excessive streambank or streambed instability or erosion.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately graded and prepared for tree and shrub establishment. Refer to NRCS Conservation Practice Standard Critical Area Planting (Code 342).
- 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:
 - Developing a Wildlife Habitat Management Plan for targeted suite of species.
 - Meeting with participant to review the Wildlife Habitat Management Plan and plan and specifications.
 - Selecting a combination of appropriate, deep-rooted tree and shrub species for preventing bank erosion, promoting sedimentation, and limiting long-term channel migration and achieving habitat and species objectives.
 - Selecting appropriate arrangement and spacing design to maximize erosion control and 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 using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- 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 livestock and, as necessary, from wildlife.
- After implementation, verify planned erosion control provided by the site is functioning and is maintained to specifications developed for the site.

E580B-Stream corridor bank vegetation improvement	July 2019	Page 4
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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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E580B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E580B the following additional criteria apply in Indiana:
 - This enhancement will follow specifications in IN Field Office Technical Guide (FOTG) Standard (580) Streambank and Shoreline Protection
 - The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (342) Critical Area Planting. Only wildlife suitable species will be used for this enhancement.
 - Planned trees and shrubs shall be established according to IN NRCS FOTG Standard (612) Tree/Shrub Establishment
 - Control annual weeds as often as needed, not to exceed three years post-planting, using mowing, spot treatments of herbicides or other until the perennial planted species are established.
 - Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.
 - Management activities will not increase the risk of erosion or bank instability.
 - To protect endangered Indiana and Long-eared bats, no timber harvest or forest stand improvement activities shall occur within 100 feet of a perennial stream or within 50 feet of an intermittent stream. Any felling of trees greater than 3 inches in diameter will not occur between April 1 and September 30 to protect maternal colonies.



CONSERVATION STEWARDSHIP PROGRAM

- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting the riparian area from livestock, machinery, and people.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E580A the following additional documentation requirements apply in Indiana:
 - Participants will be provided Job Sheets from the Seeding Tool listing species and quantity to plant. Changes to the provided list will be approved by NRCS prior to planting.
 - Documentation will follow Indiana requirements for Certification of Payment of Vegetative Planting (180-GM, IN481-3)
 - Seed tags documenting percent Pure Live Seed and total pounds seeded or numbers of trees or shrubs planted. Totals must meet minimum rates specified for the practice.
 - Documentation to show that the planting occurred within the approved planting time period and all other requirements were met.

Notes and comments on this National Enhancement

None



CONSERVATION ENHANCEMENT ACTIVITY

E590A

CONSERVATION STEWARDSHIP PROGRAM

Improving nutrient uptake efficiency and reducing risk of nutrient losses

Conservation Practice 590: Nutrient Management

APPLICABLE LAND USE: Crop (Annual and Mixed), Crop (Perennial)

RESOURCE CONCERN: Water, Air

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 to surface and groundwater and reduce risks to air quality by reducing emissions of greenhouse gases (GHGs).

The wide variability of soils, rainfall, fertilizer rates, products, placement, and timing will all influence the actual crop yield. Enhanced fertilizer products are not a yield enhancement guarantee. Products that claim yield enhancement benefits may not be applicable to this enhancement.

Note: Some technologies in this enhancement apply to use of commercial fertilizer only.

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.

E590A – Improving nutrient uptake efficiency and reducing risk of nutrient losses	May 2023	Page 1
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Select two or more (not already utilized) strategies for nutrient use efficiency:

CONSERVATION STEWARDSHIP PROGRAM

Strategy 1: Enhanced Efficiency Fertilizers (EEF) which contain **nitrification inhibitor** products resulting in delayed nitrification processes, by eliminating 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 regime 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.
- EEF products must be 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 budget requirements for the crop(s) grown. Common chemical products used to interrupt the nitrification process include, Dicyandiamide (DCD), and 2-chloro-6 (trichloromethyl) pyridine.

Strategy 2: Enhanced Efficiency Fertilizer (EEF) products which contain **urease inhibitor** products 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 regime 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 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.

E590A – Improving nutrient uptake efficiency and reducing risk of nutrient losses	May 2023	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

- EEF products must be 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 requirements for the crop(s) grown.
- Common chemical products that are known to affect urease formation are N-(n-butyl) thiophosphoric triamide (NBPT) and ammonium thiosulfate (ATS).

Strategy 3: Slow-release or controlled release formulations of nitrogen fertilizer for at least 50% of the pre-plant and/or post emergent applications.

- Use of slow-release or controlled-release nitrogen fertilizer products to improve nutrient use efficiency.

Uncoated Nitrogen Fertilizers include: Ureaformaldehyde (UF) reaction products, Ureaform and Methylene ureas.

Coated Nitrogen Fertilizers include: Sulfur-coated fertilizers, Polymer-coated fertilizers and Polymer/sulfur coated fertilizers.

Strategy 4: Nature-based fertilizer and Soil Amendments

- Use of Nature-based Fertilizer and Soil Amendments such as bio-stimulants and bio-fertilizers to:
 - Enhance uptake and efficient use of nutrients, both applied and existing.
 - Improve soil health by enhancing beneficial soil microorganisms.
 - Stimulate root growth to increase water use efficiency.

Strategy 5: 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 for the selected crop (e.g. corn) to determine if additional N fertilizer is needed.
- The use of PSNT is not recommended for all soil types and field situations. Consult your local state LGU for guidance.

Strategy 6: 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.

CONSERVATION STEWARDSHIP PROGRAM

Strategy 7: 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. Nutrient availability should be timed to crop uptake.

Strategy 8: Time nutrient application timing to match nutrient uptake timing.

- Apply nutrients no more than 30 days prior to planting date of annual crops. Nutrient availability should be timed to crop uptake.

Strategy 9: Nutrient placement below soil surface.

- Nutrients are injected or incorporated into the soil as soon as possible, no more than 24 hrs. of being applied.

Strategy 10: Use EEF technology for **phosphorous** fertilizer applications.

- EEF products must be recommended by state Land Grant University (LGU) and concurred with by NRCS.



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 applicable NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater, including existing 590A strategies. List EEF strategies or materials that have been implemented: _____
- 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 new nutrient use efficiency strategies or technologies not already used. **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 nutrient 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.
 - Nutrient placement below soil surface. Records and documentation must include method of injection or incorporation time and depth.
- 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.

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

E590A – Improving nutrient uptake efficiency and reducing risk of nutrient losses	May 2023	Page 6
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INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E590A

Additional Criteria for INDIANA

Select **two or more** (not already utilized) strategies from the National E590A for nutrient use efficiency:

Strategy 1: Enhanced Efficiency Fertilizers (EEF) which contain **nitrification inhibitor** products resulting in delayed nitrification processes, by eliminating the bacteria *Nitrosomonas* in the area where ammonium is to be present. Follow National 590A plus:

- Use the minimum application concentration or rate of inhibitor that has been proven efficacious.

Nitrification Inhibitors:

- Nitrapyrin (active ingredient). Follow EPA label.
- Dicyandiamide (also called DCD) (active ingredient).
- Other active ingredients or products could meet this definition. Contact the NRCS State Office for confirmation of additional active ingredients or products.

Ammonium thiosulfate is not eligible for this enhancement.
There is no implied endorsement of any product(s) made or intended.

Nitrification inhibitors are most useful with pre-plant nitrogen application on sandy (excessively drained) soils prone to leaching or with fall nitrogen application on poorly drained soils subject to denitrification (Note: fall applied N, even with a nitrification inhibitor, is not eligible for this CSP Enhancement).

Strategy 2: Enhanced Efficiency Fertilizer (EEF) products which contain **urease inhibitor** products to temporarily reduce the activity of the urease enzyme and slow the rate at which urea is hydrolyzed. Follow National 590A plus:

- Use the minimum application concentration or rate of inhibitor that has been proven efficacious.

Urease Inhibitors:

- NBPT (active ingredient).
- NPPT (active ingredient).
- Other active ingredients or products could meet this definition. Contact the NRCS State Office for confirmation of additional active ingredients or products.

(continued next page)



CONSERVATION STEWARDSHIP PROGRAM

Ammonium thiosulfate is not eligible for this enhancement.

There is no implied endorsement of any product(s) made or intended.

Urease inhibitors may reduce volatilization of urea fertilizers surface applied to high residue or weakly buffered soils, and when a substantial rainfall or irrigation event is unlikely for several days after application. (Source: [Agricultural Nitrogen Management for Water Quality Management in the Midwest](#), revised 2013).

Strategy 3: Slow-release or controlled release formulations of nitrogen fertilizer for at least 50% of the pre-plant and/or post emergent applications. Follow National 590A plus:

- This applies to the nitrogen requirements of the corn crop.
- Other active ingredients or products could meet this definition. Contact the NRCS State Office for confirmation of additional active ingredients or products.

Ammonium thiosulfate is not eligible for this enhancement.

There is no implied endorsement of any product(s) made or intended.

Note: It is recommended that coated urea products be used for pre-plant applications only. Preliminary data suggests that in-season applications to corn may not release nitrogen in time for crop uptake risking yield reduction and left-over nitrogen at the end of the season. Avoid surface application on sloping ground where risk of product to floating or washing to lower ground and off field or to tile inlets/risers in heavy spring rains is high.

Scenarios and instances that do not apply, such as but not limited to:

- This does not apply to applications ahead of and for soybeans.
- Foliar nitrogen fertilizers are not eligible for this enhancement.

Strategy 4: Nature-based fertilizer and soil amendments. Follow National 590A plus:

- Fertilizer and amendments need to be research based (with proof such as, but not limited to: published in peer-reviewed Journal articles; research conducted and/or support by Land Grant University; replicated strip-trials, etc.).
- Contact the NRCS State Office.

Strategy 5: In-season soil nitrate sampling. Follow National 590A plus:

- PSNT only applies to fields that are regularly manured and/or growing a perennial legume.
- The PSNT soil test shall be sent to an ACP Certified Soil Testing Laboratory. A list of laboratories can be found at: <https://alta.ag/certified-labs>



CONSERVATION STEWARDSHIP PROGRAM

- For additional information on how to conduct the pre-sidedress soil nitrate test (PSNT) and how to interpret the results refer to:

(continued next page)

Purdue University publication - *The Pre-sidedress Soil Nitrate Test for Improving N Management in Corn* (AY-314-W)

<https://www.extension.purdue.edu/extmedia/AY/AY-314-W.pdf>

Strategy 6: In-season plant tissue sampling and analysis as a complement to soil testing. Follow National 590A plus:

- Analysis is for nitrogen (corn only).
- Current soil test must not be older than 4 years old.
- **For information (in its entirety) on how to conduct corn leaf tissue testing (chlorophyll meter) and how to interpret the results refer to:**
 - *Determining Nitrogen Fertilizer Sidedress Application Needs in Corn Using a Chlorophyll Meter* (AY-317-W)

<https://www.extension.purdue.edu/extmedia/AY/AY-317-W.pdf>

- According to the Purdue AY-317, the sampling protocol in general (this is not all inclusive) is:

Reference Strips:

- Requires the use of already established reference strips.

Sample Location:

- Individual leaf measurements should be made on 30 different plants at each sampling location within a field.
- The average greenness score should be used as the average SPAD reading for that location.
- Refer to AY-317 for instructions on plant growth stage and leaf to sample.

Acceptable in-field meters such as, but not limited to include:

- SPAD Meter.
- Greenseeker Handheld Crop Sensor.

Strategy 7: Split nutrient applications. Follow National 590A plus:

- Fall applications of anhydrous ammonia for a spring-seeded crop do not qualify as a pre-plant application.
- Use of a urease or nitrification inhibitor or controlled-release fertilizer applied pre-plant or at planting does not replace split application of N after the crop is established.

Strategy 8: Time nutrient application timing to match nutrient uptake timing. Follow National 590A plus:

- This applies to annual crops (such as corn and soybeans).



CONSERVATION STEWARDSHIP PROGRAM

Strategy 9: Nutrient placement below soil surface.

Follow National 590A plus:

- Injection (no-till and/or strip-till) may be needed to meet additional CSP requirements.
- Incorporation may not meet additional CSP requirements.

Strategy 10: Use EEF technology for **phosphorous** fertilizer applications. Follow National 590A plus:

- Contact the NRCS State Office.

Additional Documentation Requirements for INDIANA:

- No additional documentation required.

Notes and comments on this National Enhancement:

- Formerly E590118Z, E590119Z and E590130Z.



CONSERVATION ENHANCEMENT ACTIVITY

E590B

CONSERVATION STEWARDSHIP PROGRAM

Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies

CONSERVATION PRACTICE: 590 - NUTRIENT Management

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Precision application technology and techniques are 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.
- Development of site-specific geo-referenced maps using soils data, current soil test results, and a precision agriculture system recommended by the Land Grant University or industry. Data is used 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.
- 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.

E590B - Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies	April 2022	Page 1
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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 site-specific maps and use them to develop management zones within the field.
- Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications by management zone (pounds/acre active ingredient nutrients, must include at a minimum N-P-K). Develop planned variable and flat rate application layers (maps and/or tabular statistics).
- During implementation, utilize variable rate technology. Variable rate technology may be map-based, sensor-based (crop canopy sensors), or manual.
- During implementation, keep records to document as applied records of actual variable rate applications (maps and/or tabular statistics).
- 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.
- After implementation, make documentation and records 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 Nutrient Management (CPS 590) as it relates to implementing this enhancement.



CONSERVATION STEWARDSHIP PROGRAM

- 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 site-specific maps used to develop management zones within the field.
- Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications by management zone.
- 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.

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



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E590B

Additional Criteria for INDIANA

- Fully read and implement the Conservation Enhancement Activity Sheet for E590B.
- Use the Nutrient Management (590) conservation practice standard to meet the criteria of this enhancement.
- Provide an explanation of the precision agriculture technologies utilized and how these will be used to reduce nutrient losses to surface water.
- Provide all maps, including soils maps and yield maps, used to develop Management Zones.
- Describe any variable-rate technology (VRT) equipment and strategies used. Describe how these work with the Management Zones that are developed.
- Provide a rationale for how the developed Management Zones will reduce nutrient losses to surface water compared to blanket fertilizer applications.
- Provide all “as-recommended” and “as-applied” fertilizer maps produced.
- Provide a budget of nutrients (N/P/K) applied, utilized by crops and residual in the soil for each Management Zone.

Notes and comments on this National Enhancement:

- Formerly E590118X and E590119X.



CONSERVATION ENHANCEMENT ACTIVITY
E590C

CONSERVATION
STEWARDSHIP
PROGRAM

Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture

Conservation Practice 590: Nutrient Management

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN: Water

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 on pasture.

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 (N), phosphorus (P), and potassium (K), plan application rates using land grant university (LGU) recommendations or industry practices when recognized by the LGU. Lower-than-recommended nutrient application rates are permissible if the client’s objectives are met.
- Geo-referenced map of all current and planned hay feeding areas, watering facilities, shelters, or other potential areas of animal concentration.

E590C - Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture	May 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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:
 - Split nutrient applications.
 - Apply no more than 50% of total forage N needs before green up of dormant grasses. Apply the remaining N after green up.
 - Additional nitrogen applications may be reduced or eliminated based on forage scouting, in-season soil sampling/analysis, or plant tissue sampling/analysis.
 - Nutrient application placement below soil surface.
 - Nutrients are injected or incorporated using a minimal soil disturbance method at time of application.
 - Use variable rate technology for all nutrient applications. Variable rate technology may be map-based, sensor-based (crop canopy sensors), or manual. Requires the development of site-specific production maps using soils data, current soil test results, or a productivity monitoring system with GPS to correlate field location with productivity. Data is used to diagnose low, medium, and high productivity areas (pasture management zones).
 - Movement of hay feeding locations to distribute nutrients across the pasture(s) to avoid areas of nutrient concentration and sensitive areas. Develop a detailed hay feed movement plan, which includes soil sampling of the historic/current hay feeding areas and planned areas to assess status of soil nutrients. Monitoring required through annual soil sampling, geo-references photographs, and written records.
 - Adjust pH to the optimum level for legumes and forages. Apply soil amendments to adjust soil pH according to soil test recommendations. Monitoring required through



annual soil sampling. *This option is only applicable on fields with documented need and having existing stands of forage species that do not need re-establishment.*

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, forage production goal, and applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K). *If variable rate technology will be used develop site-specific yield maps and use them to develop management zones within the pasture.*
- Prior to implementation, develop geo-referenced maps showing location of current areas of livestock concentration.
- 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:
 - Nutrient application placement below soil surface. Records and documentation must include method of injection or incorporation and depth.



CONSERVATION STEWARDSHIP PROGRAM

- Variable rate technology. Keep records to document as applied records of actual variable rate applications (maps and/or tabular statistics).
- Monitoring of hay feeding location movement. Maintain annual soil sample results, geo-references photographs, and written records.
- Adjust pH. Maintain soil test results.
- After implementation, make documentation and records 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 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. *If variable rate technology will be used, verify the development of site-specific yield maps used to develop management zones within the field.*
- 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.

E590C - Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture	May 2020	Page 4
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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



E590C - Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture	May 2020	Page 5
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E590C

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E590C the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below.
 - Follow IN FOTG 511, Forage Harvest Management if mechanically harvested.
 - Riparian and or sensitive areas around other water bodies (including sinkholes), will be deferred until mature forage growth is present prior to any grazing activities or access and then restricted to no more than 2 days per grazing period and managed to prevent any adverse impacts from grazing. All livestock access is controlled.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed.

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	3
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in rotated systems and stocked lighter.



^{2/} Overwintering heights are ideally not reached until forages have become dormant. No restrictions on post dormancy grazing heights on tall fescue dominant pastures where runoff is not a resource concern.

CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E590C the following additional documentation requirements apply in Indiana:
 - A forage livestock balance indicating proper stocking rates.
 - Pasture will have a Pasture Condition Score for indicator "Plant Vigor" of 4 or higher.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.



CONSERVATION ENHANCEMENT ACTIVITY

E590D

**CONSERVATION
STEWARDSHIP
PROGRAM**

Reduce risks of nutrient losses to surface and groundwater by increasing setback awareness via precision technology

Conservation Practice 590: Nutrient Management

APPLICABLE LAND USE: Crop (Annual and Mixed), Crop (Perennial)

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Utilize precision technology to increase Surface/Groundwater Setbacks & Associated Application Rate Restrictions (SGS&AARR) implementation during nutrient application by providing precise, real-time location information (geo-located) in the field to the equipment operator. While operating nutrient application equipment, the operator’s location is continually updated and displayed on an integrated, in-cab or add-on GPS-enabled device visible to the operator at all times to reduce the risk of nutrient application in setback and/or sensitive areas. This allows the equipment operator to manually turn off or steer equipment to avoid applying nutrients in setback or sensitive areas. Done properly this helps to protect surface and ground water resources.

Criteria

- Implementation of this enhancement requires the use of components of precision agriculture technologies for nutrient management.
- Prior or current documentation of implementation of a nutrient management meeting all NRCS Conservation Practice (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Documentation that all 590 surface/groundwater setbacks and associated

E590D – Increasing setback awareness via precision technology	May 2023	Page 1
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application rate restrictions (SGS &AARR) are geolocated in a file format that is overlaid on a current air photo and/or field map and visually displayed for the nutrient applicator. SGS&AARR includes, but are not limited to, state specific 590 surface/groundwater setbacks and sensitive areas including soils and bedrock restrictions.

CONSERVATION STEWARDSHIP PROGRAM

- Photo or written documentation of:
 - Field verification of SGS&AARR,
 - Creation of updated maps in a format compatible with the system on application equipment, and annual updating if new SGS&AARR are documented,
 - Equipment installation and testing to ensure fully functional system, and
 - Implementation of the system with each nutrient application.
- Subject to payment limitations, this enhancement will apply to all cropland acres operated by the producer meeting CSP 590.



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 (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Prior to implementation, a Qualified Individual will create an electronic file(s) with 590 criteria geolocated, compatible with all nutrient application equipment used on the farm and ensure compatibility with all equipment used. The Qualified Individual will provide copies, training, and operating instructions to all operators prior to nutrient application.
- Prior to implementation, the Qualified Individual will quality review all electronic files, and provide documentation for review to NRCS showing the system to be used by the equipment operator and electronic copies of site specific, field verified 590 maps including all SGS&AARR in a format readable by NRCS (KML files, shapefiles, or other mutually agreed upon format) via NRCS State Office designated delivery method.
- Prior to implementation, existing maps are reviewed, SGS&AARR are geolocated an in-field assessment for previously unmapped SGS&AARR is conducted and all maps updated and approved by a Qualified Individual to ensure all 590 criteria are documented and accurate.
- Prior to implementation, provide documentation of nutrient application equipment calibration.
- Prior to implementation, provide documentation to NRCS documenting the installation of equipment on tractors/equipment using a dedicated, fuse protected, power source or a factory installed power source, documentation of maps loaded onto devices, and documentation that system is fully functional and operational.

Prior to initial implementation (one time)

Verification of purchase/usage of tablet/display system with internal/connected GPS receiver	Verification of purchase/usage of tablet/display system with minimum screen brightness of 450 NITS	Verification of installation/usage of tablet/display system with a dedicated, fuse protected, power source or a factory installed power source.

CONSERVATION STEWARDSHIP PROGRAM

Prior to initial implementation (one time, or when additional SGS/AARR are documented)

Field	Acres	Verification of current CPS 590 implementation by NRCS	Verification of calibration of nutrient application equipment by Qualified Individual	Verification of electronic maps and equipment compatibility by Qualified Individual

Prior to initial implementation (one time, or when additional SGS/AARR are documented)

Field	Acres	Verification that the Qualified Individual has conducted an in-field assessment, geolocated all SGS&AARR in a compatible format and provided copies to NRCS	Verification of installation and functionality on all nutrient application equipment by Qualified Individual	Verification that the Qualified Individual has trained all equipment operators

- During implementation, keep records to document as applied records of nutrient applications (maps, photo documentation and/or tabular statistics).
- During implementation, update all electronic files when additional SGS&AARR are documented. Updated copies must be provided to NRCS annually.



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 site-specific geo-located maps. For each field, all SGS&AARR will be documented by the Qualified Individual via geo-location and included in the electronic file. NRCS staff will review to ensure that known site specific soils information and known sensitive area resource concerns are included.
- Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications by management zone.
- 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.

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



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E590D

Additional Criteria for INDIANA

- Participant will select Qualified Individual (QI) such as, but not limited to: Certified Crop Adviser (CCA); Certified Professional Agronomist (CPAg); Technical Service Provider (TSP) certified for DIA101 or DIA157.
- Apply liquid or solid nutrient products (manure **AND / OR** fertilizer) using the setbacks in the table below.
- Nutrients may not be applied on frozen and / or snow / ice covered ground.
- Apply nutrients based on a current (within last four years) soil test.

Known Feature	Liquid - Injection or Single Pass Incorporation (liquid / solid)	Liquid – Incorporation*; Surface Application (solid or compost); or Surface Application to Pasture	Liquid - Surface Application	
			≤ 6% Slope; or Residue Cover	> 6% Slope
Public Water Supply Wells & Surface Intake Structures	500	500	500	500
Surface Waters of the State	25 ^{1,2)}	50 ^{1,2)}	100 ^{1,2)}	200 ^{1,2)}
Sinkholes	25 ^{1,2)}	50 ^{1,2)}	100 ^{1,2)}	200 ^{1,2)}
Wells	50 ^{1,2)}	50 ^{1,2)}	100 ^{1,2)}	200 ^{1,2)}
Drainage Inlets, including Water & Sediment Control Basins	5 ¹⁾	50 ^{1,2)}	100 ^{1,2)}	200 ^{1,2)}
Property Lines & Public Roads	0	10	50	50

*Liquid incorporation in Table 1 means only nutrients that have been incorporated into the soil within twenty-four (24) hours of placement on the land.

All setback distances will be measured from the edge of the area of actual placement of nutrients (fertilizer **and / or** manure) on the land.

(continued on next page)



CONSERVATION STEWARDSHIP PROGRAM

- 1) If a properly designed and maintained buffer is located between the application site and:
 - a. surface waters of the state.
 - b. any known well.
 - c. the surficial opening or lowest point on any sinkhole.
 - d. or any drainage inlet, including water and sediment control basins.then the setback is the width of the buffer. The minimum width of the buffer will be 50 feet (see FOTG CPS 393, 390, or 327).

- 2) The setback is ten (10) feet if a gradient barrier (such as a berm or spoil bank) is located between the application site and: surface waters of the state; any known well; the surficial opening or lowest point on any sinkhole; or any drainage inlet, including water and sediment control basins.

Additional References include:

590 Nutrient Management Conservation Practice Standard (CPS) NRCS-Indiana, latest version.

Confined Feeding Control Law and Rules, Indiana Department of Environmental Management (IDEM).

Fertilizer Material Use, Distribution & Recordkeeping Rule, Office of Indiana State Chemist (OISC).



CONSERVATION ENHANCEMENT ACTIVITY

E595A

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 or other geospatial technologies 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

E595A – Reduced risk of pesticides in surface water by utilizing precision pesticide application techniques	April 2021	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Variable rate technology (VRT) which allows rate of pesticide application to dynamically change for site specific applications
- “Smart sprayer” technology which utilizes automatic sensors and computer controlled nozzles to turn individual nozzles on and off

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.

E595A – Reduced risk of pesticides in surface water by utilizing precision pesticide application techniques	April 2021	Page 2
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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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Acres Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E595A

Additional Criteria for INDIANA

Chemical application equipment must have GPS data loggers AND implement one (or more) of the following:

1. GPS technologies to reduce spray overlap to less than 12 inches.
2. VRT technology to adjust spray delivery according to sensed or scouted pest infestations or other spatial information such as soil type.
3. Smart sprayers that automatically activate/inactivate sprayer nozzles utilizing automatic sensors to detect the presence of a spray target.
4. Sensors in conjunction with GPS technology to individually turn spray nozzles off or on to reduce overlap (such as end rows) or to avoid spraying areas such as grassed waterways, filter strips, or field borders / fencerows.
5. Recirculation spray technology to capture and reuse overspray.
6. Electrostatic spray technology to reduce spray drift.

These additional references may also be useful.

Implementing Site Specific Management: Sprayer Technology – Controlling Application Rate On-The-Go <https://www.extension.purdue.edu/extmedia/AE/SSM-4-W.pdf>

Variable Rate Equipment – Technology for Weed Control (SSMG-7)

[http://www.ipni.net/publication/ssmg.nsf/0/F05D57E27B039458852579E5007671F1/\\$FILE/SSMG-07.pdf](http://www.ipni.net/publication/ssmg.nsf/0/F05D57E27B039458852579E5007671F1/$FILE/SSMG-07.pdf)

Notes and comments on this National Enhancement:

- Formerly E595116X.



CONSERVATION STEWARDSHIP PROGRAM

Reduce risk of pesticides in surface water and air by utilizing IPM PAMS techniques

Conservation Practice: 595 Integrated Pest Management

APPLICABLE LAND USE: Crop (annual & mixed), Crop (perennial), Pasture

RESOURCE CONCERN: Water, Air

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 water and air. Reduce the potential for delivery of chemicals into water or ozone precursor emissions.

Criteria

- Documentation of producer’s record of how integrated pest management is meeting all general criteria within the Integrated Pest Management Conservation Practice Standard (CPS 595).
- Utilize ***at least four additional activities from techniques below***. The four or more activities can come from one or all of the PAMS activities identified 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.
 - For pasture, activities could include: longer rotation periods, higher stop grazing heights, identify quarantine or exclusion zones if pests are present, and utilize weed free hay. Utilize forage species or varieties with generic resistance to anticipated insects or diseases.
 - Avoidance activities include maintaining healthy and diverse plant communities, using pest resistant varieties, crop and livestock rotation, and refuge

E595B – Reduced risk of pesticides in surface water and air by utilizing IPM PAMS techniques	October 2023	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

management. Maintain populations of beneficial species to limit development of weed and insect infestations.

- For pasture, activities include establishment of trap and/or cover crops to avoid pests’ migration and invasion into healthy pasture lands. Utilize grazing practices that maintain vigorous forage growth that competes with weeds and able to withstand insects or diseases. Consider adding a diversity of forage species to dilute insect host plants and reduce opportunities for plant pest pressure.
- Monitoring activities include scouting for both pests and beneficial organisms, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments. Monitoring may include the use of drones, or other remote sensing tools which can provide color, red, or infrared images to help detect pest issues. Utilize weather models to help predict disease or insect outbreaks.
 - For pasture, use pasture condition score (PCS) and/or determining indicators of pasture health (DIPH) to assess and evaluate effects of invasive pests.
- 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. Optimizing application timing (plant phenology, weather and soil conditions etc.), using precision application equipment, or substituting lower risk pesticides.
 - For pasture, consider biological control activities, such as livestock grazing for targeted suppression and control of invasive plant species used in conjunction with other pest management activities. Consider utilizing the timing, duration, frequency and intensity of grazing to disrupt insect or disease cycles. Also consider other synthetic or biological agents (other than livestock) to manage weeds, insects and diseases.
 - When addressing air quality, 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, biofumigants or adding adjuvants. Consider conditions/practices that reduce herbicide volatilization (in areas with low RH and high temps).

E595B – Reduced risk of pesticides in surface water and air by utilizing IPM PAMS techniques	October 2023	Page 2
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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

E595B – Reduced risk of pesticides in surface water and air by utilizing IPM PAMS techniques	October 2023	Page 3
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**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E595B

Additional Criteria for INDIANA

Requirements for “High Level IPM” include:

- **REQUIRED** - Monitoring technique, including intensive crop scouting (i.e. during planting/emergence, mid-season and late season and pre-harvest evaluation). Follow economic threshold levels, as referenced in a Purdue Extension/scientific publication, or a predicted threat by Purdue University Specialists, for ALL pesticide applications.
- **REQUIRED** - Insecticide seed treatment on soybeans is only to be used if an early season infestation by seed/seedling feeder insects are identified by scouting, past infestations are common to a field or a problematic management scenario is used. Refer to Purdue Extension Publication: “*Soybean Insect Control Recommendations – current year*” <https://extension.entm.purdue.edu/publications/E-77.pdf>

Additional References include:

Corn & Soybean Field Guide (ID-179), current edition.

Purdue University, *Field Crops Pest Management Manual* (IPM-1)

The Effectiveness of Neonicotinoid Seed Treatment in Soybeans (E268)
<https://extension.entm.purdue.edu/publications/E-268/E-268-W.pdf>

Purdue University Field Crops IPM website:
<https://extension.entm.purdue.edu/fieldcropsipm/>

Purdue University Pest and Crops Newsletters at:
<https://extension.entm.purdue.edu/pestcrop/>

Purdue University, Field Crop Insects Publications:
https://extension.entm.purdue.edu/publications/pubs/f_crop.html



CONSERVATION STEWARDSHIP PROGRAM

Acceptable drift reducing methods include: drift reduction nozzles, drops, shielding, pressure adjustment, electrostatic spray technology, or re-circulating spray technology to minimize drift; reduced sprayer pressure; reduced boom height; and spray adjuvants to reduce evaporation.

Additional references include:

2020 Weed Control Guide (Ohio, Indiana & Illinois) (WS-16) (4.5MB) – refer to page 16, Off-Target Movement of Herbicides:

<http://estore.osu-extension.org/Weed-Control-Guide-for-Ohio-Indiana-and-Illinois-2018-PDF-P503.aspx>

Adjuvants and the Power of the Spray Droplet (PPP-107) (17.1MB) (9/2014) at:

<https://ppp.purdue.edu/wp-content/uploads/2016/08/PPP-107.pdf>

Stay on Target: Prevent Drift (PPP-51) at:

<https://www.extension.purdue.edu/extmedia/PPP/PPP-51.pdf>

Notes and comments on this National Enhancement:

- Formerly E595116Z and E590129Z.



CONSERVATION ENHANCEMENT ACTIVITY

E595D

**CONSERVATION
STEWARDSHIP
PROGRAM**

Increase the size requirement of refuges planted to slow pest resistance to Bt crops

Conservation Practice 595: Pest Management

APPLICABLE LAND USE: Crop (Annual and Mixed)

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Bacillus thuringiensis (Bt) plant-incorporated protectants are plants that have been genetically altered to produce proteins that are harmful to certain insect pests. Widespread implementation of Bt crops has decreased insecticide use and increased crop yields, but it must be used as part of an integrated pest management (IPM) approach to protect the crop from pest species that are not susceptible to the Bt toxin and to manage pest resistance.

Crop rotation, scouting and resistance management strategies, such as planting and creating refuges of non-Bt crops, are essential when farming Bt crops. Insects have developed resistance to Bt proteins. To mitigate the development of further resistance, growers are required to plant refuges of non-transgenic crops. These refuges produce numbers of susceptible insects that will help sustain populations of non-resistant insects.

The size of refuge requirement depends on the environment, pest and strain of the crop. The size of refuge is determined by resistance risk and can vary depending on the product. A recent study published in the Journal of Integrated Pest Management revealed, compliance has been a challenge. Only 40% of growers surveyed stated they were planning to plant a refuge (Reisig 2017). Further, EPA (2018) reports document refuge compliance as low as 7% in areas at the highest risk of resistance. Non-compliance arises, in part, due to a

E595D – Increase the size requirement of refuges planted to slow pest resistance to Bt crops	May 2023	Page 1
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concern for yield loss and thus profit loss if a non-Bt refuge is planted.

Criteria

- This enhancement will increase the size of the required refuge by an additional 10% (of the total crop acreage) in areas with the highest risk of pest resistance to Bt crops¹, Ex. If the label requires a refuge to be 20% of the entire crop, an additional 10% area of non-Bt crop would be needed to be planted for a total of a 30% refuge to receive incentivization under this enhancement.
- Additional refuge planted must adhere to the extant terms of registration for Bt crops. (see Fig 1.)

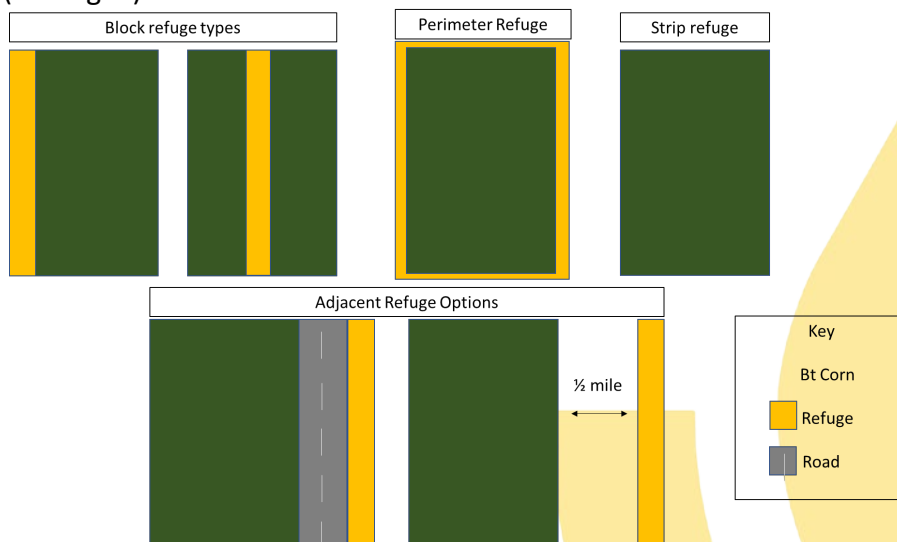


Figure 1. Refuge Planting Design Options

- Refuge designs include separate fields, blocks within fields (e.g., along the edges or headlands), perimeter strips, or in-field strips can be used to achieve the 10% increase.

1-The high risk resistance region consists of the states of Alabama, Arkansas, Georgia, Florida, Louisiana, North Carolina, Mississippi, South Carolina, Oklahoma (only the counties of Beckham, Caddo, Comanche, Custer, Greer, Harmon, Jackson, Kay, Kiowa, Tillman, Washita), Tennessee (only the counties of Carroll, Chester, Crockett, Dyer, Fayette, Franklin, Gibson, Hardeman, Hardin, Haywood, Lake, Lauderdale, Lincoln, Madison, Obion, Rutherford, Shelby, and Tipton), Texas (except the counties of Carson, Dallam, Hansford, Hartley, Hutchinson, Lipscomb, Moore, Ochiltree, Roberts, and Sherman), Virginia (only the counties of Dinwiddie, Franklin City, Greensville, Isle of Wight, Northampton, Southampton, Suffolk City, Surrey, Sussex) and Missouri (only the counties of Dunkin, New Madrid, Pemiscot, Scott, Stoddard) Virginia (only the counties of Dinwiddie, Franklin City, Greensville, Isle of Wight, Northampton, Southampton, Suffolk City, Surrey, Sussex) and Missouri (only the counties of Dunkin, New Madrid, Pemiscot, Scott, Stoddard).



CONSERVATION STEWARDSHIP PROGRAM

- Refuge area must meet the proximity requirements of the Bt crop type (e.g., if a block refuge is planted it must be within a half mile of the Bt field, if perimeter or in-field strips are implemented, the strips must be at least 4 consecutive rows wide, etc.)
- Required refuge areas must be planted to the same crop as the Bt crop (i.e., a Bt corn field must have a non-Bt corn counterpart). The non-Bt variety must be as similar to the Bt variety as possible using an isoline hybrid if available.
- Growers who receive the incentivization are encouraged to monitor fields for Bt resistance and report unexpected pest damage to Bt crops to the company from which the grower obtained the Bt seed.

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 including:
 - Document the Bt crop and the refuge size requirement from the label.
 - A map showing the non-Bt variety of the crop (refuge area) in relation to the Bt crops, noting the original refuge plus the additional refuge areas.
 - Photographs of Bt and non-Bt crops planted in the field.
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.



CONSERVATION STEWARDSHIP PROGRAM

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 Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date



CONSERVATION ENHANCEMENT ACTIVITY

E595E

CONSERVATION STEWARDSHIP PROGRAM

Eliminate the use of chemical treatments to control pests and to increase the presence of dung beetles

Conservation Practice: Integrated Pest Management - 595

APPLICABLE LAND USE: Pasture; Range

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Pests and parasites can have a significant impact on the economic viability of livestock operations by affecting the performance and health of animals. The use of broad-spectrum insecticides, pour-ons and avermectins have been shown to have a detrimental effect on dung beetle populations. Having a healthy population of dung beetles facilitates the recycling of nutrients and promotes soil and grassland health. By eliminating the application of broad-spectrum insecticides, pour-ons, and avermectins, including injectable avermectins, for pest control in and on livestock along with rotational grazing and higher stock densities has shown to increase the dung beetle population. Use of natural or alternative methods of pest control over multiple years is encouraged.

Criteria

- Determine the chemical treatments that are harmful to the dung beetle population and eliminate use. Rotational grazing management and the use of natural treatments for pest control will be implemented. Follow all land grant university recommendations and methods of evaluations.
- A written grazing plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.

E595E – Eliminate the use of chemical treatments to control pests and to increase the presence of dung beetles	August 2019	Page 1
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- Maintain diversity of pastureland and 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:
 - A resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
 - Grazing plan that provides for 45 days or more recovery period between grazing events
 - All potential contingency plans

- 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.



Documentation Requirements

Participant will:

- Prior to implementation, provide documentation for review showing producer’s record of integrated pest management meeting 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 including:
 - Written documentation of what chemical treatment(s) that were replaced by non-harmful alternative method(s).
 - A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
 - Record of rotational grazing.
- 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

E595E – Eliminate the use of chemical treatments to control pests and to increase the presence of dung beetles	August 2019	Page 3
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E595E

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E595E the following additional criteria apply in Indiana:
 - A grazing plan will be followed according to the IN FOTG 528 – Prescribed Grazing Standard on all enrolled acreage and document in the assistance notes that “stop grazing” heights are being maintained as directed in the table below. Grazing height has an impact on the number of parasite eggs.
 - Animals will be rotated with sufficient time post grazing to interrupt parasite life cycles when possible.
 - Follow your local veterinarians recommendations on proper dosages of insecticides to prevent resistance and treat only animals requiring treatment when possible.
 - Consider culling repeat problem animals.
 - Stop grazing heights will be followed on 80% or more of the enrolled acres based on the following table: (Note: Stop grazing heights are the shortest forages present after grazing; there will be variability in the forage present.) Livestock will be removed from enrolled acreage once stop grazing heights are present or the overwintering height is reached if grazed. A contingency plan will be in place for adverse conditions.
 - Trampled or laid down forage of adequate length can be included in the stop grazing height when high density short duration grazing (mob grazing) is utilized. A minimum of 4000 pounds of dry matter must be present prior to grazing and complete recovery provided prior to the next grazing event with a minimum of 90 days.



CONSERVATION STEWARDSHIP PROGRAM

Forage Type	Stop Grazing Height (inches) ^{1/}	Overwintering Height ^{2/}
Introduced Grasses and Legumes	4	4
Native Grasses, Legumes and Forbs	6	12
Riparian and or Sensitive Areas	6	6 or 12 if native

^{1/} In continuously grazed systems or systems with only 2 or 3 paddocks, the stop grazing height should be at least one inch taller than in larger rotated systems.

^{2/} Overwintering heights are ideally not reached until forages have become dormant.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E595E the following additional documentation requirements apply in Indiana:
 - A contingency plan for livestock feed/forage for adverse conditions.

Notes and comments on this National Enhancement:

- Livestock herd records are enter/exit dates for fields/paddocks with AU's.
- Disregard the terminology "rangeland" plants. These will be pasture forage species here in Indiana.
- A reference sheet will be utilized in lieu of an ecological site description to document dominant species present.
- Similar to old enhancement E595137Z



CONSERVATION ENHANCEMENT ACTIVITY

E595F

Improving soil organism habitat on agricultural land

Conservation Practice 595: Pest Management Conservation System

APPLICABLE LAND USE: Pasture, Crop (Mixed & Annual)

RESOURCE CONCERN ADDRESSED: Pest Pressure, Soil Organism Habitat Loss or Degradation

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

To reduce or eliminate the use of seed treatments in corn and soybean cropping systems to promote beneficial organism populations and pest control. Beneficial organisms such as the Carabidae beetle are very important in the population control of common agricultural pests like the grey garden slug. Slugs are a common pest in no-till and heavily cover cropped fields. Slugs are mollusks and can ingest some treatments with no adverse effects. Beneficial organism populations can be negatively impacted when they consume slugs exposed to seed treatments. The reduction or elimination of routine seed treatments in these cash crop systems may increase beneficial insect populations.

Criteria

- Producers will reduce or eliminate treatments used in their crop rotations. Treatments on corn or soybean may not be replaced with another routine treatment, such as in-furrow applications.
- If a participant determines after contracting that a targeted 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).

E595F – Improving soil organism habitat on agricultural land	April 2021	Page 1
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- Documentation of producer’s record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria

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.
- Provide documentation to demonstrate prior seed treatment use.
- Provide any historical pest scouting reports.
- During implementation, keep documentation, such as seed labels, 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 (CPS595) 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 Amount Applied _____ Fiscal Year Completed _____



NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E595F

Additional Criteria for INDIANA

- **REQUIRED** - Insecticide seed treatment on soybeans is only to be used if an early season infestation by seed / seedling feeder insects are identified by scouting, past infestations are common to a field or a problematic management scenario is used. Refer to Purdue Extension Publication: “*Soybean Insect Control Recommendations – current year*” <https://extension.entm.purdue.edu/publications/E-77.pdf>
- **Consider** - Use the 250 or 500 rate insecticide seed treatment on corn, if available, unless an early season infestation by seed/seedling feeder insects are identified by scouting, past infestations are common to a field or problematic management scenario is used. Refer to Purdue Extension publication: “*Corn Insect Control Recommendations-current year*” [E-219-W](#)

Additional References include:

Corn & Soybean Field Guide (ID-179), current edition.

Purdue University, *Field Crops Pest Management Manual* (IPM-1)

The Effectiveness of Neonicotinoid Seed Treatment in Soybeans (E268)
<https://extension.entm.purdue.edu/publications/E-268/E-268-W.pdf>

Purdue University Field Crops IPM website:
<https://extension.entm.purdue.edu/fieldcropsipm/>

Purdue University Pest and Crops Newsletters at:
<https://extension.entm.purdue.edu/pestcrop/>

Purdue University, Field Crop Insects Publications:
https://extension.entm.purdue.edu/publications/pubs/f_crop.html



CONSERVATION ENHANCEMENT ACTIVITY

E595G

CONSERVATION STEWARDSHIP PROGRAM

Reduce resistance risk by utilizing PAMS techniques

CONSERVATION PRACTICE: 595 - Integrated Pest Management

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

RESOURCE CONCERN: Plants – Pest Pressure

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Utilize integrated pest management (IPM) prevention, avoidance, monitoring, and suppression (PAMS) techniques to reduce pesticide resistance and address plant pest pressure.

Criteria

- 1) As a baseline, document the producer’s record of Integrated Pest Management (IPM) activities currently used that meet the Conservation Practice Standard Pest Management Conservation System (CPS 595) general criteria, including but not limited to:
 - Current IPM- fields, tracts, or PLUs and acres under current management.
 - Planned IPM - fields, tracts or PLUs and acres affected.
 - Prevention activities: 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: maintaining healthy and diverse plant communities, using pest resistant varieties, crop rotation, and refuge management.
 - Monitoring activities: pest scouting, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments.
 - Suppression activities: 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. Optimizing application timing, using precision application equipment, or substituting lower risk pesticides.



CONSERVATION STEWARDSHIP PROGRAM

2) Utilize rotation of pesticide modes of action (MOA) and ***at least three new or additional activities*** from the techniques below that fit within the general PAMS strategies above:

Pre-season strategies:

- Acquisition of knowledge and skills to manage pesticide resistance by:
 - Attending educational meetings to obtain the latest information in development of sound pest management programs.
 - OR
 - Promote communication regarding pesticide resistance, by hosting a field day or community meeting to discuss pesticide resistance issues in their community.
- Diversify the current crop rotation to add different crop types to disrupt the host plant/pest cycle and reduce use of the same pesticide MOA season after season.
- Add cover crops to the crop rotation or consider use of nurse crops and intercropping of crops to be competitive with weeds thereby reducing weed pressure in the cash cropland weed seed development or as host crops for beneficial insects
- Use grazing and/or browsing animals when applicable, to reduce weed populations.

Planting strategies:

- Plant certified (or tested by a certified lab) weed-free crop, cover crop, or pollinator habitat seed to reduce introduction of new weed pests.
- Use pre-emergence herbicides with soil residual activity, with different mechanisms of activity MOA on target weed species.
- Plant crops with stacked traits to maximize the diversity of available pest management tools a crop with Bt (bacillus thuringiensis) and herbicide resistance traits.

Growing season strategies:

- Managing the crop according to recommendations from local extension experts or crop consultants (i.e., Certified Crop Advisors) to promote overall crop vigor, resilience, and competitiveness.
- Scouting prior to pesticide application to correctly identify the target pest and to determine if economic thresholds or estimates of crop damage are met before applying pesticides.
- Time pesticide applications treatment or other PAMS activity when the most susceptible life cycle stage of the target pest(s) is present to maximize the efficacy for the treatment selected.
- Methods of monitoring include use of monitoring traps to indicate adult emergence, real time data feeds from monitoring systems, or using weather or vegetation growth models that predict conditions conducive to pest development.



CONSERVATION STEWARDSHIP PROGRAM

- Perform in-field follow-up after pesticide application determine and document whether the applied pesticide provided effective control of the target pests.
- Use of cultural, mechanical, or biological pest management strategies such as, tillage, mowing, flaming, roller crimping etc.

Harvesting strategies:

- Manage the soil seedbank by reducing weed seed inputs through use of harvest weed seed destruction equipment i.e., combine weed seed grinding.
- Manage the field environment (including soils) to lessen the probability of weed establishment, enhance weed seed decay, and promote weed seed predation (e.g., maintaining habitat refuges, delaying postharvest tillage etc.).

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 Pest Management Conservation System (CPS 595) as it relates to implementing this enhancement.
- Evaluate any new pesticides used with this enhancement with WIN-PST and will plan appropriate mitigation if needed to protect water quality and/or beneficial organism protection.
- As needed, provide technical assistance to the participant as requested.
- After implementation, verify implementation by reviewing 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



CONSERVATION ENHANCEMENT ACTIVITY

E595H

CONSERVATION STEWARDSHIP PROGRAM

Improved crop management to control wheat stem sawfly

Conservation Practice 595: Pest Management

APPLICABLE LAND USE: Crop (Annual and Mixed)

RESOURCE CONCERN: Plant

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Utilize crop management practices which both reduce wheat stem sawfly (WSS) and increase beneficial parasitoid wasp populations. This enhancement applies only to locations with an active WSS population.

Criteria

- Plant solid-stem wheat varieties for all wheat in the rotation. Solid-stem varieties kill about 40% of WSS larvae arising from eggs deposited within its stems.
- Do not plant wheat, barley, or triticale in succession with itself or one another.
- Do not include wheat, barley, or triticale in cover crop or forage plantings.
- Include oats (*Avena sativa*) at least once in each crop rotation cycle. Oats act as a natural attractant and trap crop for WSS, killing 100% of larvae arising from eggs laid within its stems. Time the planting of the oats to provide sufficient vegetation during WSS flight and egg-laying activity, typically a 6-week time window time from late May to early July. Use one of the following methods to include oats in the crop rotation:
 - Oat grain crop
 - Oat trap crop planted around the perimeter of a wheat or barley crop. The oat trap crop should be a minimum width of one seeder



CONSERVATION STEWARDSHIP PROGRAM

pass around the field perimeter, or approximately 5% of the total field acreage. Plant the trap crop within 2-3 days of the wheat or barley crop and use the same crop season type for the trap crop as the attractant crop. For example, plant spring oats with spring wheat and winter oats with winter wheat. In northern latitudes with no winter-hardy oat varieties, spring oats can be planted as a trap crop with winter wheat if the spring oat is planted as early in the spring as possible.

- Cover crop or forage crop with a minimum 15% oats as a portion of the total seed mix.
- Increase beneficial habitat for parasitoid wasps, natural enemies that kill WSS larvae, with the following management practices:
 - Harvest wheat and barley at no less than one-third of the total crop height. For example, if the mature wheat crop is 30 inches tall, use a harvest height of 10 inches or more.
 - Leave a minimum of 75% of the total wheat and barley residue on the soil surface.
 - Do not use inversion tillage within the rotation.
 - Do not burn, bale, or graze wheat or barley residue.
 - Avoid the use of pyrethroids, carbamates, or organophosphate insecticides.

Documentation and Implementation Requirements:

**CONSERVATION
STEWARDSHIP
PROGRAM**

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)

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.
- 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.
- During implementation, evaluate any planned changes in the mulching plan to ensure enhancement criteria are met.
- If changes were made after implementation, use information provided from the participant 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 ENHANCEMENT ACTIVITY

E612B

CONSERVATION STEWARDSHIP PROGRAM

Planting for carbon sequestration and storage

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant tree species and/or shrubs to sequester and store carbon. Forest stands will be managed for longer rotations and/or enhanced composition diversity to improve carbon storage.

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species will be selected for their rate of growth, lifespan, historic range, mature size, suitability for retention as wildlife or legacy species, and/or suitability for use in long-lived sustainable wood products as well as their adaptability to current and future site conditions, including soil type.
- To support forest-level carbon sequestration and storage, native plant communities, soil organic matter, standing and down woody material should be properly maintained.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.

E612B - Planting for carbon sequestration and storage	July 2022	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Only viable, high-quality, and site-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).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Planting must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments to protect establishing trees and shrubs, as necessary.
- 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.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation:
 - provide an updated Forest Management Plan that documents intended objectives for carbon sequestration and storage.
 - select a combination of species with longer life spans that are suitable for their rate of growth, historical range, mature size, suitability for retention as wildlife or legacy species, and/or suitability for use in long-lived sustainable wood products as well as their adaptability to current and future site conditions, including soil type.
 - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)



CONSERVATION STEWARDSHIP PROGRAM

- During implementation:
 - install and maintain erosion control measures as needed for the site.
 - protect the planting(s) from plant and animal pests and fire.
 - notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting date			
Planting Technique			
Arrangement/Spacing			

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. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
 - verify the enhancement is planned for the appropriate land use.
 - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
 - verify no plants on the Federal or state noxious weeds list are included.
 - NRCS will provide Technical Assistance, as needed, in the following:
 - Selecting a combination of species to meet enhancement criteria.
 - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
 - Planning the use of additional erosion control, as needed for the site.
- 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.
 - verify all erosion control needed for the site is functioning and is maintained 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612B

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E612B the following addition criteria apply to Indiana:

- Only tree species (average mature height above 30 ft.) will be planted. Shrubs species are not eligible.
- Species selection, rates, and site adaptation will be consistent with the requirements in the IN NRCS Seeding Calculator and/ or IN FOTG Standard (612) Tree/Shrub Establishment. Tree and/or shrub plantings will follow site preparation, planting dates, planting and storage guidelines as detailed in IN FOTG Standard (612) Tree/Shrub Establishment.
- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting trees from livestock, and machinery
- In areas with endangered or threatened snakes (Northern Copperbelly water snake, Eastern Massasauga rattlesnake, Kirtland’s Snake) management activities will not be performed from April 1 through October 31.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E612B the following additional documentation requirements apply in Indiana:

- Indiana Job Sheet (612): Tree/Shrub Establishment or an equivalent tree planting plan

Notes and comments on the National Enhancement:

- E612B is not suitable for existing forestland.
- Not compatible with: 338-associated enhancements during the contract period. E528D and E528L, unless plantings are protected.
- Formerly: E612130Z



CONSERVATION ENHANCEMENT ACTIVITY

E612C

CONSERVATION STEWARDSHIP PROGRAM

Establishing tree/shrub species to restore native plant communities

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Establish trees and/or shrubs to restore elements of plant communities and diversity that have been lost. Restoring stand-level diversity and function improves health and vigor through planting resilient and/or resistant native plant communities. Additional benefits include providing diversity in wildlife habitat and forage.

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species selected for planting will be native to the site and will create a successional state that progresses toward the identified target plant community.
- To enhance native plant diversity, select a minimum of three different species of trees and/or shrubs to be planted. An exception is in situations where a native lost species is being restored to a fully-stocked forest stand. (i.e., American chestnut). Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.



CONSERVATION STEWARDSHIP PROGRAM

- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-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).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Planting must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments to protect establishing trees and shrubs, as necessary.
- 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.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation:
 - provide an updated Forest Management Plan that documents intended objectives for restoring native plant communities.
 - select a combination of at least three native tree/shrub species that will increase plant and stand diversity.

Species	Note selected species characteristic(s)



CONSERVATION STEWARDSHIP PROGRAM

- During implementation:
 - install and maintain erosion control measures as needed for the site.
 - protect the planting(s) from plant and animal pests and fire.
 - notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

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.
 - verify the enhancement is planned for the appropriate land use.
 - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
 - verify no plants on the Federal or state noxious weeds list are included.
 - NRCS will provide Technical Assistance, as needed, in the following:
 - Selecting a combination of species to meet enhancement criteria.
 - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
 - Planning the use of additional erosion control for the site, as needed.
 - 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 and were established to specifications developed for the site.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation:
 - verify the plantings were protected from plant and animal pests and fire.
 - 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



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E612C

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E612C the following additional criteria apply in Indiana:

- Consultation with the Indiana NRCS State Forester is required before planning this enhancement.
- Prior to planning, verification of a loss of plant diversity or native plant community is required.

Notes and comments on the National Enhancement:

- Most often used in Indiana when past forest management such as high grading or uneven aged management has eliminated certain native tree species.
- Use caution when planning this enhancement in existing forestland. Trees must be planted in areas with adequate sunlight.
- Not compatible with: 338-associated enhancements during the contract period., nor E528D and E528L unless plantings are protected.
- Formerly: E612132Z



CONSERVATION ENHANCEMENT ACTIVITY

E612D

CONSERVATION STEWARDSHIP PROGRAM

Adding food-producing trees/shrubs to an agroforestry system

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

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

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant food producing trees/shrubs for wildlife or human consumption within an agroforestry system (windbreaks/shelterbelts, alley cropping, forest farming, silvopasture, and/or riparian forest buffer).

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species selected will be able to produce food and/or culinary items to create an edible landscape. See States list for suitable woody plants.
- Apply at least one of the following activities to improve edible food production:
 - Add at least one edible, food producing row to existing linear plantings.
 - 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.
 - 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-or 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.



CONSERVATION STEWARDSHIP PROGRAM

- Further considerations are visual appeal, proximity to farmsteads, proximity to areas of wildlife use or viewing, or other locations depending on landowner objectives.
- Minimize herbicide use. Use spot weed treatments and avoid spraying when flowers are present.
- Selection of species should also be chosen according to the site’s natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-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).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, livestock, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- 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.



Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- Prior to implementation:
 - provide an updated Forest Management Plan that documents intended objectives for adding food-producing trees/shrubs for wildlife or human consumption.
 - prepare the planned acres for trees and shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
 - 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.
 - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

During implementation:

- install and maintain erosion control measures as needed for the site.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

- Prior to implementation:
 - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.



CONSERVATION STEWARDSHIP PROGRAM

- verify the enhancement is planned for the appropriate land use.
- verify no plants on the Federal or state noxious weeds list are included.
- NRCs will provide Technical Assistance, as needed, in the following:
 - Selecting a combination of species to meet enhancement criteria.
 - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
 - Planning the use of additional erosion control for the site, as needed.
 - 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 and were established to specifications developed for the site.
 - After implementation, verify the plantings were protected from plant and animal pests and fire.
 - After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- During implementation:
 - evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.
- After implementation:
 - verify the plantings were protected from plant and animal pests and fire.
 - 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

E612D - Adding food-producing trees/shrubs to an agroforestry system	July 2022	Page 4
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**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E6121D

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E612D the following additional criteria apply in Indiana:

- IN FOTG Standard (645) Upland Wildlife Habitat Management, and IN Biology Technical Note: Upland Wildlife Management contain information on species selection and a list of tree and shrub species and their benefits for specific wildlife.
- For non-native trees and shrubs choose species and varieties that are non-invasive. These could include varieties of the following: Apples, Apricot, Peach, and Pear. Do not plant species such as white mulberry, and callery pear. The Indiana Invasive Species Council lists invasive trees and shrubs for Indiana at <https://www.entm.purdue.edu/iisc/invasiveplants.php> . Do not plant species assessed as highly or medium invasive on this list.
- The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (612) Tree and Shrub Establishment will be used when developing tree planting mixes for this practice.
- For only Native Species selection, rates, and site adaptation will be consistent with the requirements in the IN NRCS Seeding Calculator (check “Yes” for wildlife-friendly specie)s and/ or IN FOTG Standard (612) Tree/Shrub Establishment. Tree and/or shrub plantings will follow site preparation, planting dates, planting and storage guidelines as detailed in IN FOTG Standard (612) Tree/Shrub Establishment.
- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting trees from livestock, and machinery.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E612D the following additional documentation requirements apply in Indiana:

E612D	December 2022	Page 1



CONSERVATION STEWARDSHIP PROGRAM

- Indiana Job Sheet (612): Tree/Shrub Establishment or an equivalent tree planting plan.
- Indiana Tech. Note: Tree & Shrub Establishment (FOTG Section I), or Indiana Tech. Note: Direct Seeding of Trees & Shrubs (FOTG Section I), or Indiana Trees to Manage (CTSG) (FOTG, Section II, Forestry)

Notes and comments on this National Enhancement:

- Use caution when planning this enhancement in existing forestland. Trees must be planted in areas with adequate sunlight. If planting under existing trees, the overstory trees must be killed or removed within 2-5 years after plant establishment. Some exception can be made for extremely shade tolerant species (however most shade tolerant species are typically not lacking in Indiana). Consult with the Indiana NRCS State Forester if shade tolerant species are desired.
- Information on adding food producing trees in agroforestry plantings can be found in the Working Trees Info: Why add edible and floral plants to riparian forest buffers? Produced by the USDA National Agroforestry Center (USDA National Agroforestry Center home page, Publications, Working Trees Infor Sheets)
- Specifications on species, cultivars, form, mature widths/heights can be found in Edible Woody Landscapes for People and Wildlife, produced by the USDA National Agroforestry Center (USDA National Agroforestry Center home page, Publications, More Publications)
- Not Compatible with: 338-associated enhancements during the contract period. E528D and E528L unless plantings are protected.
- Formerly: E612133X1



CONSERVATION ENHANCEMENT ACTIVITY

E612E

CONSERVATION STEWARDSHIP PROGRAM

Cultural plantings

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Planting trees/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 criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species will be selected for their cultural importance.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-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).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.



CONSERVATION STEWARDSHIP PROGRAM

- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- 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.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation:
 - provide an updated Forest Management Plan that documents intended objectives for cultural plantings.
 - prepare the planned acres for trees and/or shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
 - select a combination of tree and shrub species selected for their cultural importance and their adaptability to site conditions.
 - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

- During implementation:
 - install and maintain erosion control measures for the site, as needed.
 - protect the planting(s) from plant and animal pests and fire.
 - notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.



CONSERVATION STEWARDSHIP PROGRAM

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

- Prior to implementation:
 - provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
 - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
 - verify the enhancement is planned for the appropriate land use.
 - verify no plants on the Federal or state noxious weeds list are included in the planning combination.
 - verify cultural significance and use is documented.
 - NRCS will provide Technical Assistance, as needed, in the following:
 - Selecting a combination of species to meet enhancement criteria.
 - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
 - Planning the use of additional erosion control for the site, as needed.
 - 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 and were established to specifications developed for the site.

- After implementation:
 - verify the plantings were protected from plant and animal pests and fire.
 - verify all erosion control needed for the site is functioning and is maintained 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612E

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E612E the following addition criteria apply to Indiana:

- IN FOTG Standard (645) Upland Wildlife Habitat Management, and IN Biology Technical Note: Upland Wildlife Management contain information on species selection and a list of tree and shrub species and their benefits for specific wildlife.
- The Indiana (IN) Natural Resources Conservation Service (NRCS) Seeding Tool using Field Office Technical guide (FOTG) Standard (612) Tree and Shrub Establishment will be used when developing tree planting mixes for this practice.
- Species selection, rates, and site adaptation will be consistent with the requirements in the IN NRCS Seeding Calculator (check “Yes” for wildlife-friendly species) and/ or IN FOTG Standard (612) Tree/Shrub Establishment. Tree and/or shrub plantings will follow site preparation, planting dates, planting and storage guidelines as detailed in IN FOTG Standard (612) Tree/Shrub Establishment.
- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting trees from livestock, and machinery.
- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E612E the following additional documentation requirements apply in Indiana:

- Indiana Job Sheet (612): Tree/Shrub Establishment or an equivalent tree planting plan.



CONSERVATION STEWARDSHIP PROGRAM

- Indiana Tech. Note: Tree & Shrub Establishment (FOTG Section I), or Indiana Tech. Note: Direct Seeding of Trees & Shrubs (FOTG Section I), or Indiana Trees to Manage (CTSG) (FOTG, Section II, Forestry)

Notes and comments on the National Enhancement:

- Information on culturally significant tree and shrub species can be found on the NRCS USDA home page Culturally Significant Plants 2010 (Manhattan Plant Material Center) (NRCS Plant Material Program, Technical Resources, Technical Publications, Ethnobotany)
- Use caution when planning this enhancement in existing forestland. Trees must be planted in areas with adequate sunlight. If planting under existing trees, the overstory trees must be killed or removed within 2-5 years after plant establishment. Some exception can be made for extremely shade tolerant species (however most shade tolerant species are typically not lacking in Indiana). Consult with the Indiana NRCS State Forester if shade tolerant species are desired.
- Not compatible with: 338-associated enhancements during the contract period. E528D and 528L unless plantings are protected.
- Formerly: E612133X2



CONSERVATION ENHANCEMENT ACTIVITY

E612F

CONSERVATION STEWARDSHIP PROGRAM

Sugarbush management

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Establish or maintain tree/shrub species diversity in a sugar maple (*Acer saccharum*) stand to enhance pollinator and wildlife needs.

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Maintain the sugarbush in a fully stocked condition based on an appropriate stocking guide. Maintain at least 20% of basal area in species other than sugar maple (or other species used in syrup production (e.g., red maple or paper birch)) to promote species diversity. Half of that 20 percent of basal area should be in mast producing species (hard or soft mast).
- Thin the sugarbush stand to achieve correct stocking levels (e.g. 80 percent sugar maple/20 percent other species), and/or allow space for planting new trees/shrubs. Use NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) to identify characteristics of trees to remove and to remove trees.
- When the existing sugarbush does not have 20% of basal area in other species not used for syrup production, selection of species to be planted should be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.



CONSERVATION STEWARDSHIP PROGRAM

- Use tree tapping guidelines that minimize tree damage. Tap trees should be tapped sustainably, minimizing impact to the trees and the forest, using appropriate equipment and methods for the geographic area.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-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).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- 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:

- Prior to implementation:
 - provide an updated Forest Management Plan that documents intended objectives for sugarbush management.
 - prepare the planned acres for trees and/or shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
 - select tree species to plant based on adaptation to climatic region, soil properties and capabilities, and light requirements for establishment, if existing sugarbush does not have 20% of basal area in species that are not sugar maple. Remove the necessary number of trees to achieve the correct stocking level and/or allow space for new tree planting, as needed.
 - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.



CONSERVATION STEWARDSHIP PROGRAM

Species	Note selected species characteristic(s)

During implementation:

- install and maintain erosion control measures for the site, as needed.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

Prior to implementation:

- provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- verify the enhancement is planned for the appropriate land use.
- verify no plants on the Federal or state noxious weeds list are included in the planning combination.
- NRCS will provide Technical Assistance, as needed, in the following:
 - Selecting a combination of species to meet enhancement criteria.
 - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
 - Planning the use of additional erosion control for the site, as needed.



CONSERVATION STEWARDSHIP PROGRAM

- 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 and were established to specifications developed for the site.
- After implementation:
 - verify the plantings were protected from plant and animal pests and fire.
 - 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



INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E612F

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E612F the following additional criteria apply in Indiana:

- The list of Indiana mast producing species that help sustain wildlife populations are found in the Indiana Biology Tech. Note: Upland Wildlife Habitat Management (FOTG, Section I, Technical Notes) under both soft mast and hard mast producing trees (page 12-15).
- If planting under the canopy of existing maples, then only plant shade tolerant species. Including:

Trees		
Red Maple	American Beech	Eastern Hemlock
Silver Maple	Hop Hornbeam (<i>Ostrya</i>)	Ohio Buckeye
Sugar Maple	Muscle Wood (<i>Carpinus</i>)	Sassafras
Boxelder	Basswood	Persimmon
Hazelnut	American Elm	Red Mulberry

Shrubs		
Spicebush	Elderberry	Chokeberry, Black
Pawpaw	Witch-hazel	Chokeberry, Common
Serviceberry	Dogwood	Bladdernut
Redbud	Winterberry	

- If some sugar maples must be removed then removed trees are allowed to be sold, however any trees removed to meet this Enhancement must follow the *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*. Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements for removing those individual trees. Participants and loggers are encouraged to seek out possible requirements for non-Federal



CONSERVATION STEWARDSHIP PROGRAM

Actions for T&E Species directly from the USFWS and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.

- Species selection, rates, and site adaptation will be consistent with the requirements in the IN NRCS Seeding Calculator and/ or IN FOTG Standard (612) Tree/Shrub Establishment. Tree and/or shrub plantings will follow site preparation, planting dates, planting and storage guidelines as detailed in IN FOTG Standard (612) Tree/Shrub Establishment.
- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E612F the following additional documentation requirements apply in Indiana:

- Indiana Job Sheet (612): Tree/Shrub Establishment or an equivalent tree planting plan.
- Use caution when planning this enhancement in existing forestland. Maple are considered shade tolerant, however they do best in adequate sunlight. If planting under existing trees, some overstory thinning is recommended within 2-5 years after plant establishment. Consult with a professional Forester when planting under existing trees.
- Indiana Tech. Note: Tree & Shrub Establishment (FOTG Section I), or Indiana Tech. Note: Direct Seeding of Trees & Shrubs (FOTG Section I), or Indiana Trees to Manage (CTSG) (FOTG, Section II, Forestry)

Notes and comments on this National Enhancement:

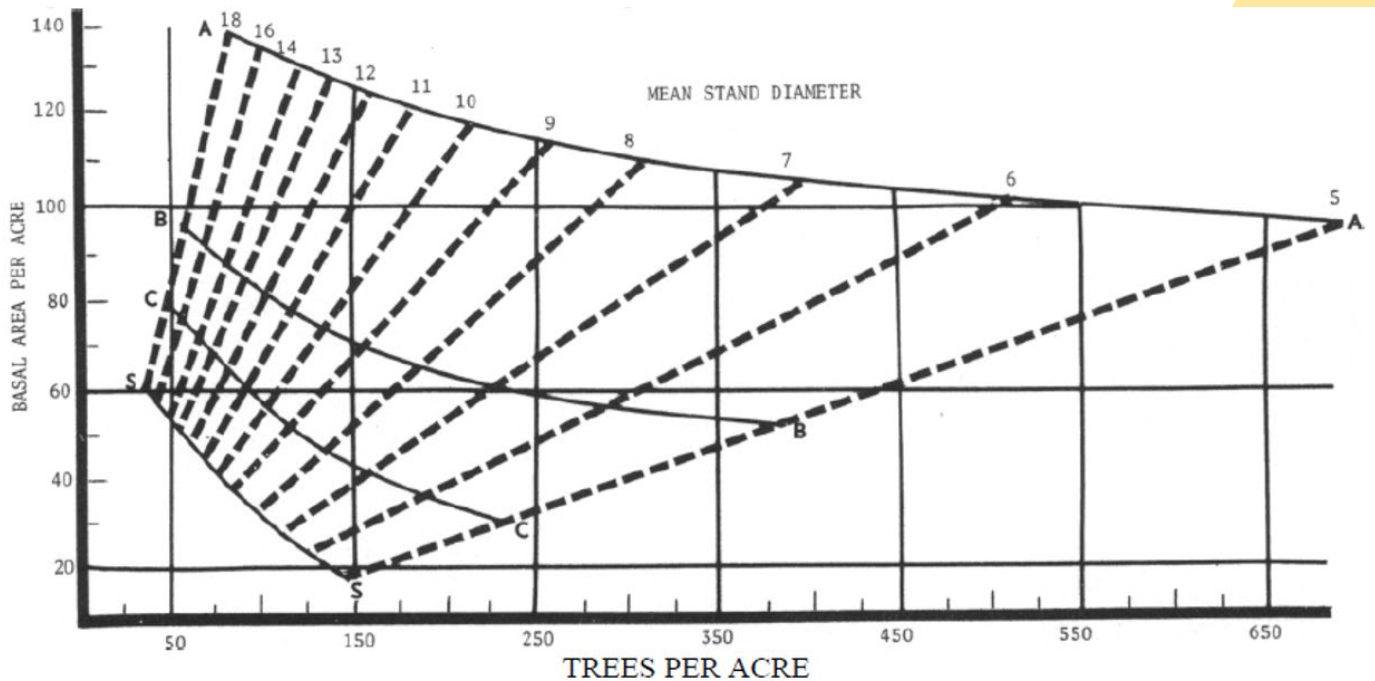
Formerly: E612133X3



CONSERVATION STEWARDSHIP PROGRAM

*A Silvicultural Guide for Developing a Sugarbush
USDA Forest Service Resrearch Paper NE-286, 1974*

Stocking chart for even-aged northern hardwood. For sugarbush management, maple stands at the S line are minimum stocking levels. Stands between A and B lines are adequately/fully stocked. Stands nearing A-line or above should consider a thinning practice (FSI). Stands between B and C-line should be adequately stocked within 10 years (typical of some post timber harvest stocking).



Number of sugar maple tree per acre and spacing by average stand-diameter class for sugarbush stands at S level, C level, and B level of stocking

Average stand dbh class	S Level		C Level		B Level	
	Trees acre	Tree spacing	Trees acre	Tree spacing	Trees acper re	Tre spacin g
Inches	No.	Feet	No.	Feet	No.	Feet
6	126	19	160	16	299	12
8	98	21	140	17	190	15
10	79	23	105	20	129	18
12	64	26	86	23	99	21
14	54	28	76	24	86	23
16	46	31	70	25	76	24



CONSERVATION ENHANCEMENT ACTIVITY

E612G

CONSERVATION STEWARDSHIP PROGRAM

Tree/shrub planting for wildlife habitat

CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest; Associated Ag Land

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Tree/shrub planting will provide the plant diversity, structure, and composition needed to enhance habitat and forage for identified wildlife species.

Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Select a minimum of five species of trees and shrubs to be planted, 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).
- Groupings of trees and shrubs will be managed for best growth, visual appeal, proximity to areas of wildlife use.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.



CONSERVATION STEWARDSHIP PROGRAM

- Only viable, high-quality and site-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).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- 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.

Documentation and Implementation Requirements

Participant will:

- Prior to implementation:
 - provide an updated Forest Management Plan that documents intended objectives for wildlife habitat.
 - prepare the planned acres for trees and/or shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
 - select a combination of five trees and shrubs for their importance in providing food for native wildlife, and their adaptability to site conditions.
 - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)



CONSERVATION STEWARDSHIP PROGRAM

- During implementation:
 - install and maintain erosion control measures for the site, as needed.
 - protect the planting(s) from plant and animal pests and fire.
 - notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

NRCS will:

- Prior to implementation:
 - provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
 - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
 - verify the enhancement is planned for the appropriate land use.
 - verify no plants on the Federal or state noxious weeds list are included in the planning combination.
 - NRCS will provide Technical Assistance, as needed, in the following:
 - Selecting a combination of species to meet enhancement criteria.
 - Selecting planting techniques, arrangement and spacing design, and timing appropriate for target native wildlife, the site and soil conditions.
 - Planning the use of additional erosion control for the site, as needed.
 - 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 and were established to specifications developed for the site.



CONSERVATION STEWARDSHIP PROGRAM

- After implementation:
 - verify the planned trees and shrub species were established to specifications developed for the site.
 - verify the plantings were protected from plant and animal pests and fire.
 - 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612G

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E612G the following addition criteria apply to Indiana:

- Only plant tree and shrubs species listed in the IN FOTG Standard (645) Upland Wildlife Habitat Management, and IN Biology Technical Note #4: Upland Wildlife Management. The document also contains information on species selection, planting density and their benefits for specific wildlife.
- Species selection, rates, and site adaptation will be consistent with the requirements in the IN NRCS Seeding Calculator and/ or IN FOTG Standard (612) Tree/Shrub Establishment. Tree and/or shrub plantings will follow site preparation, planting dates, planting and storage guidelines as detailed in IN FOTG Standard (612) Tree/Shrub Establishment.
- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting trees from livestock, and machinery
- Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E612G the following additional documentation requirements apply in Indiana:

- Indiana Job Sheet (612): Tree/Shrub Establishment or an equivalent tree planting plan

Notes and comments on the National Enhancement:

E612G	December 2022	Page 1



CONSERVATION STEWARDSHIP PROGRAM

- As stated, trees and shrubs will be planted in areas with adequate sunlight. Caution will be used if plantings are used in forested settings, plant in canopy openings. If planting under existing trees, the overstory trees must be killed or removed within 2-5 years after plant establishment. Some exception can be made for extremely shade tolerant species. Consult with a professional forester if planting under existing trees.
- Additional information on tree and shrub establishment planting rates and using tree seedlings, container stock, or direct seeding methods can be found in the Forestry Tech. Note#2 Tree and Shrub Establishment.
- Not compatible with 338-associated enhancements during the contract period, E528D and E528L unless plantings are protected.
- Formerly: E612136Z and E612137Z



CONSERVATION ENHANCEMENT ACTIVITY

E643B

CONSERVATION STEWARDSHIP PROGRAM

RESTORATION AND MANAGEMENT OF RARE OR DECLINING HABITAT

Conservation Practice 643: Restoration and Management of Rare or Declining Habitats

APPLICABLE LAND USE: Forest

RESOURCE CONCERNS: Animals

PRACTICE LIFE SPAN: 5 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.
- 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.).

E643B Restoration and management of rare or declining habitat	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 ¼ 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, methods, 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 reference sites do not exist, 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).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- Prior to implementation, obtain documentation from the appropriate State agency 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,
 - provides an appropriate ecological setting for rescuing such plants that need relocation due to imminent threat(s).
- Prior to implementation, obtain site-specific designs for refugia, including locations, 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.
- 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 planned species. Have documentation available for NRCS review.
- 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.
- Prior to implementation, arrange workers and materials for refugia construction.
- During implementation, follow the plan for protecting resources during refugia construction.
- After implementation, follow the monitoring plan.
- 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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Prior to implementation, verify the enhancement is planned for the appropriate land use.
 - Prior to implementation, verify participant documentation 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,
 - Provides an appropriate ecological setting for rescuing such plants that need relocation due to imminent threat(s).
 - Verify that any additional state NRCS requirements have been met.
- 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.
- As needed, prior to implementation, NRCS will provide technical assistance in:
 - Selecting suitable locations for refugia location.
 - Protecting site resources during construction.
 - Preparing specifications for applying this enhancement for each site using NRCS 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 refugia were constructed according to specifications developed for the site.
- 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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E643B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E643B the following criteria apply in Indiana:
 - Only sites meeting the following criteria will be eligible for this enhancement:
 - A High Quality Natural Community must be identified on or adjacent to the proposed enhancement location, or
 - There must be an identified threatened or endangered plant species on the property, or
 - There must be a known threatened or endangered plant species within a buffered distance of the proposed enhancement AND the site has suitable conditions for restoring additional habitat for the identified plant.
 - If any of the above conditions exist, contact the NRCS State Biologist or NRCS State Forester to discuss the applicability or feasibility of this enhancement.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E643B the following documentation requirements apply in Indiana:
 - NRCS will identify the specific requirements for each site after an evaluation of site conditions and provide approved job and specification sheets.

Notes and comments on this National Enhancement

- All state and federal regulations regarding the movement and transplant of threaten or endangered plant species will be followed. It is the participants' responsibility to obtain necessary permits.
- Relocating a plant by transplanting is generally not advisable.
- This enhancement requires strict access control, including the fencing of sensitive areas to exclude livestock, wildlife and people.
- Minimum 0.25 acre in size



CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION ENHANCEMENT ACTIVITY

E643C

Restore glade habitat to benefit threatened and endangered species and state species of concern

Conservation Practice 643: Restoration and Management of Rare or Declining Habitats

APPLICABLE LAND USE: Forest, Associated Ag Land

RESOURCE CONCERNS: Animal

PRACTICE LIFE SPAN: 5 years

Enhancement Description

Restore Glade natural communities as shown by the Ecological Site Description to conserve biodiversity. Enhancement requires reducing woody canopy cover and applying at least one prescribed fire to treated acres. Restoration of glade communities provide habitat for rare and declining species. Sites that previously or currently support the rare and declining habitat will be targeted for restoration.

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 restoration activities.



CONSERVATION STEWARDSHIP PROGRAM

- Applied to sites where the Ecological Site Description designates “glade” habitat or as determined appropriate by site evaluation that considers all glade criteria.
- A pre-treatment habitat assessment, such as a WHEG, of the affected area will be documented to provide a baseline for comparison with post-treatment conditions.
- A restoration and management plan covering a ten-year period shall be developed by a restoration specialist, based on inventory information from the WHEG, and using glade criteria from the Ecological Site Description as the desired future condition (DFC). The plan will identify practices, monitoring, and maintenance activities to be implemented throughout the ten-year period beginning with initial enhancement implementation, to achieve and maintain the DFC.
- Prior to prescribed burning, invasive plant and animal species, and noxious weeds shall be controlled (if present) on the treated area. 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.
- A written burn plan must be developed, and all necessary approvals secured prior to conducting the prescribed burn. Use the Prescribed Burning (338) conservation practice standard and posted supporting documents to complete the written burn plan.
- 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: Prescribed Burning (Code 338); Fence (Code 382); Access Control (Code 472); Brush Management (Code 314); Herbaceous Weed Control (Code 315); and Upland Wildlife Habitat Management (Code 645).

E643C - Restore glade habitat to benefit threatened and endangered species and state species of concern	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

- Where planting and/or seeding is needed to achieve restoration goals, on sites where effects of prescribed burning in stimulating the growth of desired vegetation have been evaluated and determined to be inadequate:
 - Site preparation, planting dates and methods, and plant material care and handling shall optimize vegetation survival and growth.
 - Prepare species and seeding rate specifications to achieve desired habitat condition.
 - Adapt vegetation to the Ecological Site Description and the planned purpose.
- Management practices and activities shall not disturb cover during the primary nesting period.
- Only use chainsaws or other hand methods (hack and squirt, basal spraying, etc.) to remove unwanted woody vegetation. The use of clippers, bulldozers or other mechanical equipment is not an acceptable restoration method for glades.
- The site shall be excluded from grazing.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Use the Restoration and Management of Rare or Declining Habitats (Code 643) conservation practice and posted supporting documents to meet the criteria of this enhancement.
- Prior to implementation, use appropriate Ecological Site Description to determine glade habitat for restoration.
- Prior to implementation, obtain site-specific designs, including locations and dimensions, and timing of activities.
- Prior to implementation, conduct a pre-treatment habitat assessment of the affected area using the appropriate Wildlife Habitat Evaluation Guide.
- Follow restoration methods as outlined in the Restoration and Management of Rare or Declining Habitats Standard and supporting jobsheets, implementation requirements, or other documents.
- Obtain a Prescribed Burn Plan written by a certified burn planner that meets NRCS criteria and provide a copy to the NRCS field office.
- Conduct at least one prescribed burn after tree and shrub removal.
- If seeding is required, appropriate species will be selected as described in the Ecological Site Description.
- After implementation, conduct a post-treatment habitat assessment of the affected area using the appropriate Wildlife Habitat Evaluation Guide. The score must result in a 0.5 or greater.

NRCS will:

- Prior to implementation, verify that the enhancement is planned for the appropriate land use and is applicable to the site.
- Prior to implementation, provide assistance with the development of a Prescribed Burn Plan or refer to an appropriate burn planner.
- Prior to implementation, provide technical assistance in preparing specifications for applying this enhancement for each site using NRCS approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

E643C - Restore glade habitat to benefit threatened and endangered species and state species of concern	August 2019	Page 4
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CONSERVATION STEWARDSHIP PROGRAM

- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation certify that the prescribed burn was completed according to the burn plan and Prescribed Burning (338) practice specifications.
- After implementation, verify the habitat was restored according to specifications developed for the site.
- 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 _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature Date



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E643C

Additional Criteria for INDIANA

- Glade Habitats are a unique and fragile ecosystem. Contact the State Biologist and State Forester for more information on planning and implementing this practice.





CONSERVATION ENHANCEMENT ACTIVITY

E644A

CONSERVATION STEWARDSHIP PROGRAM

Managing Flood-Irrigated Landscapes for Wildlife

Conservation Practice 644: Wetland Wildlife Habitat Management

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

RESOURCE CONCERN: Animals

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 waterbirds.

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).
- 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

E644A – Managing Flood-Irrigated Landscapes for Wildlife	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

(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).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- Prior to implementation, meet with NRCS to review results of the 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 the Wildlife Habitat Management Plan.
- During implementation, follow the Wildlife Habitat Management Plan.
- During implementation, maintain field log to include:
 - Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
 - Digital photographs documenting 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, provide and explain state NRCS Conservation Practice Standard Wetland Wildlife Habitat Management (Code 644) as it relates to implementing this enhancement.
- Prior to implementation, assess habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; **Existing WHEG score = _____ Planned Post Implementation WHEG score = _____**
- Prior to implementation, review results of the wildlife habitat evaluation with participant, and discuss range of management alternatives that would improve wildlife habitat conditions
- Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- 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.

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E644A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E644A the following additional criteria apply in Indiana:
 - Target wildlife based on State Wildlife Action Plan.
 - Follow Specifications in IN Field Office Technical Guide (FOTG) (644) Wetland Wildlife Management for Wildlife for target species.
 - Consider contacting a District Biologist, Private Lands Biologist, Farm Bill Biologist for a flood timing and a drawdown plan. Drawdowns should occur over a 2-3 week period to maximize benefit to migratory species. Drawdowns through evaporation are preferred for this practice. Drawdowns are not required as part of this practice unless specified in the water management plan.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E644A the following documentation requirements apply in Indiana:
 - Documentation that soils are capable of supporting surface water for the necessary duration.
 - IN Wildlife Habitat Evaluation Guide- Shallow Water Habitat comparing before and after conditions.

Notes and comments on this National Enhancement

- This practice is only applicable on flood irrigated fields capable of holding water at an average depth of 8 to 18 inches for necessary duration. Field must contain less than 25% woody vegetation.



CONSERVATION ENHANCEMENT ACTIVITY

E645B

CONSERVATION STEWARDSHIP PROGRAM

Manage existing shrub thickets to provide adequate shelter for wildlife

Conservation Practice 645 Upland Wildlife Habitat

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 year

Enhancement Description

Existing shrub thickets provide an instant and important cover for wildlife. Various wildlife species may use shrubs as winter/thermal cover, summer shade, roosting, or as escape cover from predators. Proper management ensures that these shrubs will continue to provide the desired benefits for the local wildlife. A combination of herbicide treatments, cutting and trimming branches, and removal of other competing vegetation will occur. An eligible existing shrub thicket needs to have a canopy cover of 750 square feet, with an end goal of expanding to 1500 square feet. Any existing shrub thicket (not hand planted within the last 5 years) are eligible for this enhancement. Shrub thickets found within fence rows may now be very wide, but still meet the 750 square feet, are eligible.

Criteria

Multiple activities may need to occur to properly manage existing shrubs. Any activities involving tree removal will be coordinated with a Forester. Options for management of existing shrubs are described below:

- A. Encouraging new growth on existing plants
 - 1. Pruning and cutting back of plants is best done when the shrubs are dormant. Cutting back shrubs close to the ground encourages growth of new stems at ground level, which provides more protection for animals using the interior of the shrub. Leaving

E645B – Manage existing shrub thickets to provide adequate shelter for wildlife	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

the cut branches on the ground adjacent to the thicket, will provide cover until new branches grow back .

2. Cutting back dead limbs is best done when the plants are actively growing, in order to observe which branches are alive, and which branches are dead. Leaving the dead branches on the ground and adjacent to the shrub thicket can provide additional cover at ground level.
 3. Before cutting branches and leaving them adjacent to the thicket, prepare the ground by creating bare ground for the branches to lay on.
- B. Creating bare ground for easier access by wildlife and encourage suckering of new growth.
1. Applying herbicide underneath and adjacent to shrub thicket(s) will create bare ground, which encourages suckering of new plant growth by eliminating vegetation and opening the canopy. Also, bare ground will allow smaller wildlife species to move more freely under the shrubs.
 2. Application of herbicide should be timed and applied carefully in order to not harm shrub plants. Pre-emergent or post-emergent herbicides may be desired.
 3. Herbicide usage on adjacent agricultural lands should be applied carefully to prevent drift and harm to shrub thickets.
 4. Utilization of a slow creeping fire through the shrub thickets will have similar effects and stimulate new growth. Some plants may be killed at the ground level, but new branches and stems will be created.
- C. Eliminating predator perches and opening escape paths in and near shrub thickets.
1. All trees found growing within, or close to shrub thickets create predator perches, and eliminates escape routes for bird species which may flush from the shrub thicket.
 2. Any trees found growing within shrub thickets shall be removed. Immediate stump treatment to prevent regrowth may be desired for some species.
 3. Undesirable trees found adjacent to shrubs (within 50 feet) will also be removed. Stump treatment to prevent regrowth may be desired for some species.



CONSERVATION STEWARDSHIP PROGRAM

4. Hinge-cutting trees with numerous branches adjacent to thickets can provide additional shrubby type cover. Prepare the ground by creating bare ground prior to dropping and leaving trees. Large tall trees with few branches are not desirable for hinge cutting, and should be removed from the site to prevent creating predator habitat.

D. Additional maintenance activities

1. Exclusion of livestock may be warranted immediately following management activities.
2. Avoid damage (chemical and mechanical) done by adjacent agricultural practices.



Documentation and Implementation Requirements

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

- Prior to implementation, provide a map showing the location of proposed shrub thickets to be managed with notes on land use adjacent to proposed areas to discuss with NRCS staff.
- During implementation, follow management guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Cover Upland Wildlife Habitat (Code 645).
- 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.

NRCS will:

- Prior to implementation, assess habitat condition using the appropriate state 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, identify target wildlife species and appropriate desired conditions for existing shrub thickets for target species. Document on the state approved Wildlife Habitat Management Plan.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).
- After implementation, verify successful completion of management (per criteria above).



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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E645B

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E645B the following criteria apply to Indiana:

- This enhancement requires additional consideration of appropriate location and suitability. Contact the State Biologist for more information and assistance prior to scheduling this practice.
- Where applicable, follow IN FOTG Standard (472) Access Control and IN FOTG Standard (382) Fencing for guidance on protecting shrub thickets from livestock, and machinery.
- The Joint NRCS and USFWS Requirements for the Indiana Bat and Northern Long-Eared Bat will be followed.

Notes and comments on the National Enhancement:

- Note minimum size requirements for this enhancement (initial thicket a minimum of 750 square feet, ending size 1500 square feet). Shrub plantings 5 years or less old are not eligible.
- Trees up to fifty feet away from the shrub thicket will need to be removed or hinge-cut into the thicket area if close enough.



CONSERVATION ENHANCEMENT ACTIVITY

E645C

CONSERVATION STEWARDSHIP PROGRAM

Edge feathering for wildlife cover

Conservation Practice: 645 Upland Wildlife Habitat

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

Selected trees are cut, and brush clipped along the border between a wooded area and a grassland, cropland, or idle land, creating a dense woody cover of interlocking branches at ground level. The feathered edge will be an average of 30 feet wide and a minimum of 50 feet long, resulting in an area of 1500 square feet. The width of the strip will vary to follow topographic features and to create a wavy border; the design will also consider aesthetics. Vegetative composition and cover will vary within the edge, ranging from areas with no trees and shrubs to areas with scattered trees and extensive shrub cover. The variation in vegetation structure along with variable width of the edge will create feathering. The edge may include shrub plantings for wildlife food and aesthetics.

Criteria

- Select an area to edge-feather where many of the existing trees can be cut without damaging the ecological or economic value of the property.
- Design the configuration of the edge to correspond with topographic variation, so that the edge may be wider on ridgetops, narrower in valleys, and discontinuous to allow for forested riparian buffers.
- Treat invasive plant and animal species and noxious weeds if present on the area to be edge feathered. Where possible, control will be limited to that necessary to



CONSERVATION STEWARDSHIP PROGRAM

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.

- Limit disturbance during wildlife nesting and rearing seasons.
- Mark trees to retain in the feathered edge, selecting from among mast producing species, wolf trees, trees with cavities and/or loose bark, or other trees with desirable habitat or aesthetical characteristics. Consider the location of retained trees so they blend gradually with the adjacent forest, being taller and more closely spaced on the side toward the forest. Cut all other trees over 12 feet tall in the area to be edge feathered using hand tools such as chainsaws. Woody residue will be left lying in the feathered edge to provide wildlife cover.
- Treat cut stumps of undesirable hardwood trees with an approved herbicide. Leave native shrub species if they are less than 12 feet tall. If they are taller than 12 feet, cut them at ground level but DO NOT treat the shrub stumps.
- Exclude livestock from edge feathered areas. Use prescribed fire to manage and maintain feathered edges in appropriate forest types.
- Inspect edge feathered areas on an annual basis to determine maintenance activities. Treat invasive and/or undesirable plant species and noxious weeds as needed. Add woody debris to the site as the wood decomposes and is worn down.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, provide a map showing the location and design of proposed edge-feathering.
- Prior to implementation, select a suite of desired wildlife species that benefit from feathered edges, with the aid of NRCS or a biologist.
- Mark trees to be retained in the feathered edge with the assistance of NRCS, or a biologist and/or forester.
- During implementation, follow management guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).
- During implementation, follow and document progress on the state approved Implementation Requirements sheet.
- Following implementation, provide NRCS with photo documentation.
- Following implementation, inspect edge feathered area on an annual basis and carry out maintenance activities as needed.

NRCS will:

- Prior to implementation, identify a desired suite of wildlife species and appropriate desired conditions for edge feathered areas. Document on the state approved Implementation Requirement sheets.
- Prior to implementation provide technical assistance on site selection, tree species selection, design, and other specifics.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).
- Prior to implementation, provide and explain the state approved Implementation Requirements sheet for this practice.
- After implementation, verify successful completion of management (per criteria above).



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





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E645C

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E645C the following criteria apply to Indiana:

- Guidance IN FOTG (649) Structures for Wildlife will be followed when designing this practice.
- Consider using this practice on the west or southern edges of a field, to increase sunlight exposure to productive cropland, without reducing total wildlife habitat availability.
- The Joint NRCS and USFWS Requirements for the Indiana Bat and Northern Long-Eared Bat will be followed.

Notes and comments on the National Enhancement:

- Note minimum size requirements for this enhancement. The feathered edge must be an average 30 feet wide and a minimum of 50 feet long (resulting in 1500 square feet)



CONSERVATION ENHANCEMENT ACTIVITY

E645D

CONSERVATION STEWARDSHIP PROGRAM

Enhanced Wildlife Habitat Management for Upland Landscapes

CONSERVATION PRACTICE: 645 - Upland Wildlife Habitat Management

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

RESOURCE CONCERN: Animals (Inadequate Fish & Wildlife Habitat)

ENHANCEMENT LIFE SPAN: 1 years

Enhancement Description

Enhance existing upland wildlife foraging, breeding or overwintering habitat (currently meeting minimum wildlife habitat planning criteria) for locally breeding and migratory wildlife species.

Criteria

- Appropriate locations for this enhancement will be provided by the NRCS State Office who will base locations on current distribution of the targeted species and potential expansion into adjacent habitat for the target species.
- Create a supplement to an existing Wildlife Habitat Management Plan listing management actions that will provide locally breeding or migratory wildlife species with enhanced foraging, breeding, or overwintering habitat. The supplement will identify management activities, locations where they will be applied, the amount in which they'll be applied and the time they will be applied to meet the targeted wildlife needs.
- Use a Wildlife Habitat Evaluation Guide (WHEG), appropriate to target species and land use, to document that implementation of the Enhancement will improve wildlife habitat value above minimum planning criteria. The following may be used to meet this criterion:
 - [For circumstances where planning criteria for wildlife habitat is equal to 0.5] Post implementation, planning criteria for wildlife habitat is equal to or greater than 0.6.
 - [For circumstances where planning criteria for wildlife habitat is greater than 0.5] Post implementation, planning criteria for wildlife habitat increases at least 0.1.



CONSERVATION STEWARDSHIP PROGRAM

- States will apply general criteria from NRCS National Conservation Practice Standard (NCPS) Upland Wildlife Habitat Management (Code 645) as well as additional criteria either already contained in the State’s Specification or determined by the NRCS State Office. Examples of State criteria are:
 - No nitroguanidine neonicotinoids (clothianidin, dinotefuran, imidacloprid, and thiamethoxam) will be applied in any manner to the acres covered by this enhancement.
 - No insecticides allowed from February 1 – September 30th or while resident plants are in bloom on cropland, orchard, or vineyards.
 - All existing or newly installed vertical pipes used for any purpose, will be capped (e.g., fence post construction, vents for irrigation or water storage, wildlife structure placement).
 - Disturbance to key migratory, nesting, rearing, or hiding locations are controlled, almost eliminated, when target wildlife species are using locations.
 - To assess efficacy and support adaptive management, contracted areas are monitored using NRCS State Office approved monitoring approaches.

- Operations and Maintenance actions will include:
 - Regular use of a WHEG to evaluate habitat conditions and to adapt the habitat management supplement and schedule of implementation if necessary. If planned habitat conditions do not materialize as expected explore additional alternatives to reach desired wildlife habitat conditions.
 - Follow all required Operations and Maintenance actions required by NCPS Upland Wildlife Habitat Management (Code 645) and all facilitating practices planned/contracted to address the limiting habitat elements/ factors.
 - Annually inspect and repair structural or vegetative components associated with this enhancement.

- Use of fertilizers, pesticides and other chemicals shall not compromise the habitat management objectives and will adhere to the State’s Upland Wildlife Habitat Management (Code 645) specifications.

- Use criteria in other NRCS Conservation Practice Standards to facilitate the management of wetland wildlife habitat associated with the uplands as appropriate for the site.

- Depending on site conditions, facilitating practices may be used to implement this enhancement. The NRCS Conservation Practice Standards may include, but are not limited to: Wildlife Habitat Planting (Code 420), Hedgerow Planting (Code 422), Fence (Code 382), Restoration of Rare or Declining Plant Communities (Code 643), Field Border (Code 386),



Filter Strip (code 393), Grade Stabilization Structure (Code 410), Riparian Herbaceous Cover (Code 390), Shallow Water Development and Management (Code 646), Stream Crossing (code 578), Structure for Water Control (Code 587).

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- Prior to implementation, review NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645), including any State approved implementation requirements, job sheets or work sheets.
- Prior to implementation, provide NRCS with any relevant information related to onsite operations and management for inclusion in the Wildlife Habitat Management Plan.
- 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 the Wildlife Habitat Management Plan.
- During implementation, maintain field log to include:
 - Date/time of each field visit and document any required monitoring activities from the supplement
 - Digital photographs to document habitat provided through the management actions intended to reduce the impacts of human disturbance.
- 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, provide and explain State NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645) as it relates to implementing this enhancement.



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, assess habitat condition using Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; **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 wildlife habitat on land type for targeted suite of species using those habitats.
- Prior to implementation, review and explain the Wildlife Habitat Management Plan to the participant.
- After implementation, reassess habitat condition using the 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E645D

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E645D the following criteria apply to Indiana:

- Target species and habitat in Indiana will include the focal species used in the Indiana CRP SAFE agreements and WLFW. NOTE- CSP enhancements cannot take place on CRP land, but could be used to enhance habitat adjacent to CRP enrollments.
 - Species include Henslow Sparrow, Northern Bobwhite, Ring-necked Pheasant, Indiana Bat/Northern Long-eared Bat, and Monarch butterfly.
 - See attached map for target locations.
- Use the appropriate WHEG with the target species or species group habitat rating to assess current and planned conditions. Planned condition must be a minimum of 0.6 OR increased by a minimum of 0.1 points from the current score. If a species specific WHEG does not exist, use the General Wildlife WHEG.
- Once the planting is established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.
- Follow the USFWS and NRCS Joint Requirements for the Indiana and Northern Long-eared bat, including tree felling may only occur between October 1 and March 31; when near hibernacula felling will only occur November 16- March 31.



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E645D

- This enhancement includes the implementation of supporting practices. Implementation requirements for any supporting practices will be also be incorporated into the management plan.
 - Suitable supporting practices include, but are not limited to:
 - 645 Upland Wildlife Habitat Management- Food Plot
 - 647 Early Successional Habitat Development and Management
 - 338 Prescribed Fire
 - 420 Wildlife Habitat Planting- Interseeding
 - 422 Hedgerow Planting
 - 612 Tree and Shrub Planting

Notes and comment on Nation Enhancement

- This enhancement is for the implementation of practices included in a supplement to an existing management plan. The plan may be updated by a qualified wildlife biologist or planner with appropriate job approval authority.
- Practice may be scheduled up to 5 years.
- This includes maintenance of a field log showing the implementation of the practices.



CONSERVATION ENHANCEMENT ACTIVITY

E646A

CONSERVATION STEWARDSHIP PROGRAM

Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

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 . 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.

- 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.

E646A - Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Manipulation can occur prior to holding water. Manipulation should not affect more 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 E647A - Manipulate vegetation on fields with captured rainfall for waterfowl and wading bird winter habitat. If not paired with E647A, this Enhancement may also be paired with E646C – Manipulate vegetation and maintain closed structures for shorebird mid-summer habitat or E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat.

E646A - Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- Prior to implementation, ensure all water control structures are in proper working order.
- Prior to implementation, meet with NRCS to review the results of the 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 the Wildlife Habitat Management Plan.
- During implementation, follow the Wildlife Habitat Management Plan including opening / closing water control structures as specified, to hold water at the proper time and at the proper depth.
- 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
- 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 the 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 the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of

E646A - Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat	August 2019	Page 3
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E646A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E646A the following additional criteria apply in Indiana:
 - Target wildlife is migratory waterfowl and wading birds.
 - Follow Specifications in IN Field Office Technical Guide (FOTG) (646) Shallow Water Management for Wildlife for target species.
 - Consider contacting a District Biologist, Private Lands Biologist, Farm Bill Biologist for a drawdown plan. Drawdowns should occur over a 2-3 week period to maximize benefit to migratory species.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E646139Z1 the following additional documentation requirements apply in Indiana:
 - IN FOTG 646 – Shallow Water Management for Wildlife Job Sheet will be provided by NRCS.
 - Documentation that soils are capable of supporting surface water for the necessary duration.
 - IN Wildlife Habitat Evaluation Guide- Shallow Water Habitat comparing before and after conditions.

Notes and comments on this National Enhancement

- This practice is only applicable on leveed fields capable of holding water at an average depth of 6 to 18 inches for necessary duration.
- May be combined with E6461C OR E646D to maximize both waterfowl and shorebird habitat
- This practice is specific to the flooding of crop fields in mid-fall or within 2 days post harvest to provide fall migratory or wintering habitat.



CONSERVATION ENHANCEMENT ACTIVITY

E646B

CONSERVATION STEWARDSHIP PROGRAM

Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

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, a protein-rich food source for shorebirds as well as waterfowl and wading birds. Flooded conditions across the broader landscape promote a network or continuity of habitat that is available to migratory 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 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.

E646B - Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat	August 2019	Page 1
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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 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 E647A - Manipulate vegetation on fields with captured rainfall for waterfowl and wading bird winter habitat. If not grouped with E647A, this Enhancement may also be grouped with E646C – Manipulate vegetation and maintain closed structures for shorebird mid-summer habitat or E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat.

E646B - Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

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 the 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 the Wildlife Habitat Management Plan.
- During implementation, follow the 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, maintain a 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.
- 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 the habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of

E646B - Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

Enhancement; Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- Prior to implementation, review the results of the wildlife habitat evaluation with the participant, and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- Prior to implementation, meet with participant to review the 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

E646B - Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat	August 2019	Page 4
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E646B

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E646B the following additional criteria apply in Indiana:
 - Target wildlife is migratory waterfowl and wading birds.
 - Follow Specifications in IN Field Office Technical Guide (FOTG) (646) Shallow Water Management for Wildlife for target species.
 - Consider contacting a District Biologist, Private Lands Biologist, Farm Bill Biologist for a drawdown plan. Drawdowns should occur over a 2-3 week period to maximize benefit to migratory species.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E646B the following additional documentation requirements apply in Indiana:
 - IN FOTG 646 – Shallow Water Management for Wildlife Job Sheet will be provided by NRCS.
 - Documentation that soils are capable of supporting surface water for the necessary duration.
 - IN Wildlife Habitat Evaluation Guide- Shallow Water Habitat comparing before and after conditions.

Notes and comments on this National Enhancement

- This practice is only applicable on leveed fields capable of holding water at an average depth of 6 to 18 inches for necessary duration.
- May be paired with E647AOR E646C OR E646D to allow for more vegetation management of late winter waterfowl habitat.
- This practice is specific to the maintaining closed water control structures on crop fields beyond January and February to provide late wintering habitat or spring migratory habitat.



CONSERVATION ENHANCEMENT ACTIVITY

E646C

CONSERVATION STEWARDSHIP PROGRAM

Manipulate vegetation and maintain closed structures for shorebirds mid-summer habitat

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

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 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.
- Water control structures affecting the subject land use acre are to remain closed catching and holding all available precipitation, until mid-summer (i.e. July 31).

E646C – Manipulate vegetation and maintain closed structures for shorebirds mid-summer habitat	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 E646B – Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat.



CONSERVATION STEWARDSHIP PROGRAM

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 the 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 the Wildlife Habitat Management Plan.
- During implementation, follow the 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, maintain a 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.
- 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 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 the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of

E646C – Manipulate vegetation and maintain closed structures for shorebirds mid-summer habitat	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

Enhancement; Existing WHEG score = _____

Planned Post Implementation WHEG score = _____

- Prior to implementation, review results of the wildlife habitat evaluation with participant, and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- Prior to implementation, meet with participant to review the Wildlife Habitat Management Plan.
- After implementation, reassess habitat condition using the Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- After implementation, review the 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



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E646C

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E646C the following additional criteria apply in Indiana:
 - Target wildlife is migratory shorebirds.
 - Follow Specifications in IN Field Office Technical Guide (FOTG) (646) Shallow Water Management for Wildlife for target species.
 - Where vegetation management is necessary, follow specifications in IN FOTG Standard (647) Early Successional Habitat Development and Management or IN FOTGE Standard (644) Wetland Wildlife Management. Disking or rolling may be used to manage vegetation. Rolling is preferred to maintain soil quality.
 - Consider contacting a District Biologist, Private Lands Biologist, Farm Bill Biologist for a drawdown plan. Drawdowns should occur over a 2-3 week period to maximize benefit to migratory species. Drawdowns through evaporation are preferred for this practice.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E646C the following documentation requirements apply in Indiana:
 - IN FOTG 646 – Shallow Water Management for Wildlife Job Sheet will be provided by NRCS.
 - Documentation that soils are capable of supporting surface water for the necessary duration.
 - IN Wildlife Habitat Evaluation Guide- Shallow Water Habitat comparing before and after conditions.



Notes and comments on this National Enhancement

**CONSERVATION
STEWARDSHIP
PROGRAM**

- This practice is only applicable on leveed fields capable of holding water at an average depth of 8 to 18 inches for necessary duration. Field must contain less than 25% woody vegetation.
- This practice is specific to the flooding of crop fields in through July 31 to provide migratory habitat for shorebirds.
- May be paired with E646B to allow for more management of late winter waterfowl habitat along with shorebird migratory habitat.



CONSERVATION ENHANCEMENT ACTIVITY

E646D

CONSERVATION STEWARDSHIP PROGRAM

Manipulate vegetation and maintain closed structures for shorebird late summer habitat

Conservation Practice 646: Shallow Water Development and Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

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.

- Develop a wildlife habitat management plan for the targeted species suite.
- Water control structures are to remain closed in order to catch and hold all available precipitation until late-summer (i.e., August 31).

E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 E646B - Extend retention of captured rainfall for waterfowl and wading bird late winter habitat.

E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

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 the 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 the Wildlife Habitat Management Plan.
- During implementation, follow the Wildlife Habitat Management Plan including opening / closing water control structures as specified to hold water at the proper time and at the proper depth.
- During implementation, maintain the 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.
- 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 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 the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement; **Existing WHEG score = _____ Planned Post Implementation WHEG score = _____**

E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, review results of the wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop the Wildlife Habitat Management Plan for targeted suite of species.
- Prior to implementation, meet with participant to review the Wildlife Habitat Management Plan.
- After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- After implementation, review the 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

E646D – Manipulate vegetation and maintain closed structures for shorebird late summer habitat	August 2019	Page 4
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**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E646D

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E646D the following additional criteria apply in Indiana:
 - Target wildlife is migratory shorebirds.
 - Follow Specifications in IN Field Office Technical Guide (FOTG) (646) Shallow Water Management for Wildlife for target species.
 - Where vegetation management is necessary, follow specifications in IN FOTG Standard (647) Early Successional Habitat Development and Management or IN FOTGE Standard (644) Wetland Wildlife Management. Disking or rolling may be used to manage vegetation. Rolling is preferred to maintain soil quality.
 - Consider contacting a District Biologist, Private Lands Biologist, Farm Bill Biologist for a drawdown plan. Drawdowns should occur over a 2-3 week period to maximize benefit to migratory species. Drawdowns through evaporation are preferred for this practice.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E646D the following additional documentation requirements apply in Indiana:
 - IN FOTG 646 – Shallow Water Management for Wildlife Job Sheet will be provided by NRCS.
 - Documentation that soils are capable of supporting surface water for the necessary duration.
 - IN Wildlife Habitat Evaluation Guide- Shallow Water Habitat comparing before and after conditions.



Notes and comments on this National Enhancement

**CONSERVATION
STEWARDSHIP
PROGRAM**

- This practice is only applicable on leveed fields capable of holding water at an average depth of 8 to 18 inches for necessary duration. Field must contain less than 25% woody vegetation.
- May be paired with E647B to maximize waterfowl and shorebird habitat.
- This practice is specific to the flooding of crop fields in through August 31 to provide migratory habitat for shorebirds.



CONSERVATION ENHANCEMENT ACTIVITY

E647A

CONSERVATION STEWARDSHIP PROGRAM

Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERNS: Animals

ENHANCEMENT LIFE SPAN: 5 years

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.

Criteria:

E647A - Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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.
- Manipulation 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 E646A - Close structures to capture and retain rainfall for waterfowl and wading bird winter habitat or E646B – Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat.

E647A - Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- Prior to implementation, meet with NRCS to review results of the 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 the Wildlife Habitat Management Plan.
- During implementation, follow the Wildlife Habitat Management Plan.
- During implementation, maintain a 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;
 - o 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.

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 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.
- Prior to implementation, assess habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. **Existing WHEG score = _____ Planned Post Implementation WHEG score = _____**
- Prior to implementation, review results of the wildlife habitat evaluation with participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- Prior to implementation, meet with participant to review the Wildlife Habitat Management Plan.

E647A - Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- After implementation, reassess habitat condition using Wildlife Habitat Evaluation Guide; **Post Implementation WHEG score = _____**
- After implementation, review the 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

E647A - Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat	August 2019	Page 4
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E647A

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E647A the following additional criteria apply in Indiana:
 - Participant is responsible for being familiar with, and following all state and federal game laws.
 - Target species include migratory waterfowl, marshbirds, shorebirds and other species that benefit from shallow water management.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E647A the following additional documentation requirements apply in Indiana:
 - Participants will be provided appropriate IN FOTG 646 – Shallow Water Management for Wildlife Job Sheet will be provided by NRCS.
 - Participants will be provided appropriate IN FOTG Standard (647) Early Successional Habitat Development and Management Job Sheet for the management practices to be applied.
 - IN Wildlife Habitat Evaluation Guide- Shallow Water Habitat comparing before and after conditions.

Notes and comments on this National Enhancement

- This practice is only applicable on leveed fields capable of holding water at an average depth of 6 to 18 inches for necessary duration.
- May be paired with E646A OR E646B to allow for vegetation manipulation in advance of flooding.



CONSERVATION ENHANCEMENT ACTIVITY

E647C

**CONSERVATION
STEWARDSHIP
PROGRAM**

Maintain most soil vegetation on cropland edges to enhance waterfowl and shorebird habitat

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Animal

ENHANCEMENT LIFE SPAN: 5 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 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.

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 using 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.

E647C - Maintain most soil vegetation on cropland edges to enhance waterfowl and shorebird habitat	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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:

- 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, 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;
 - 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.

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. **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

E647C - Maintain most soil vegetation on cropland edges to enhance waterfowl and shorebird habitat	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E647C

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E647C the following additional criteria apply in Indiana:
 - Target species include migratory waterfowl, marshbirds, shorebirds and other species that benefit from shallow water management. This enhancement targets areas of field to wet to farm, where natural vegetation is growing.
 - Consider contacting a District Biologist, Private Lands Biologist, Farm Bill Biologist for a wildlife habitat management plan. Where applicable, drawdowns should occur over a 2-3 week period to maximize benefit to migratory species.

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E647C the following additional documentation requirements apply in Indiana:
 - Participants will be provided appropriate IN FOTG 646 – Shallow Water Management for Wildlife Job Sheet will be provided by NRCS.
 - Participants will be provided appropriate IN FOTG Standard (647) Early Successional Habitat Development and Management Job Sheet for the management practices to be applied.
 - IN Wildlife Habitat Evaluation Guide- Shallow Water Habitat comparing before and after conditions.

Notes and comments on this National Enhancement

- This practice is only applicable on fields capable of being flooded or holding standing water on edges and low areas.
- Minimum area of disturbance is 20 feet by 500 feet.
- This enhancement is for the natural regeneration of vegetation. Seeding is not part of this enhancement.



CONSERVATION ENHANCEMENT ACTIVITY

E647D

CONSERVATION STEWARDSHIP PROGRAM

Establish and maintain early successional habitat in ditches and bank borders

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 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*).

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.

E647D - Establish and maintain early successional habitat in ditches and bank borders	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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, or 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 of the primary wildlife ground nesting season.
 - Only herbicides approved for appropriate site conditions shall be applied.
 - Herbicides shall 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.
- Invasive species such as kudzu, cogongrass, Chinese tallow tree, etc. that may become established in the border area must be controlled by spot spraying with an 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).

E647D - Establish and maintain early successional habitat in ditches and bank borders	August 2019	Page 2
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CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant Will:

- Prior to implementation, meet with NRCS to review results of the 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 the Wildlife Habitat Management Plan.
- During implementation, follow the Wildlife Habitat Management Plan.
- During implementation, maintain field log to include:
 - Type of crop(s) grown.
 - Harvest date of crops grown on the applicable acres.
 - Date/time and description of all habitat management actions taken.
 - 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.

NRCS Will:

- As needed, provide additional technical assistance to the participant.
- 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.
- Prior to implementation, assess habitat condition using the Wildlife Habitat Evaluation Guide to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement.
Existing WHEG score = _____ Planned Post Implementation WHEG score = _____
- Prior to implementation, review results of the wildlife habitat evaluation with the participant and discuss range of management alternatives that would improve wildlife habitat conditions.
- Prior to implementation, develop a Wildlife Habitat Management Plan for targeted suite of species.
- Prior to implementation, meet with the participant to review the Wildlife Habitat Management Plan.

E647D - Establish and maintain early successional habitat in ditches and bank borders	August 2019	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

- 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



**INDIANA SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E647D

Additional Criteria for INDIANA

- In addition to the criteria specified in the National job sheet E647D the following additional criteria apply in Indiana:
 - Target species of wildlife are those that require early-successional edge habitat such as Northern bobwhite, eastern cottontail, woodcock, and ground nesting birds, such as waterfowl.
 - Ditch banks dominated by invasive species (reed canarygrass, common reed (*Phragmites australis*), etc.) or non-wildlife friendly vegetation (fescue), that can not be controlled by spot-spraying alone, are not eligible for this enhancement.
 - Management of vegetation in the early successional condition will follow IN Field Office Technical Guide (FOTG) Standard (647) Early Successional Habitat Development and Management. No more than 1/3 of the available habitat will be disturbed in a given year. No disturbance (mowing, disking, or spraying, other than spot spraying of noxious and invasive weeds) is permitted on the same location between treatment periods.
 - Management activities will not increase the risk of erosion or bank instability.
 - Once established, management activities that disturb cover or ground surface will not be performed from April 1 through August 1 to protect the primary nesting period for ground-nesting bird species. In areas with endangered or threatened snakes (Northern Copperbelly water snake, Eastern Massasauga rattlesnake, Kirtland’s Snake) management activities will not be performed from April 1 through October 31.
 - To protect endangered Indiana and Long-eared bats, no timber harvest or forest stand improvement activities shall occur within 100 feet of a perennial stream or within 50 feet of an intermittent stream. Any felling of trees greater than 3 inches in diameter will not occur between April 1 and September 30 to protect maternal colonies.



CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for INDIANA

- In addition to the documentation requirements specified in the National job sheet E647D the following additional documentation requirements apply in Indiana:
 - Participants will be provided appropriate IN FOTG Standard (647) Early Successional Habitat Development and Management Job Sheet for the management practices to be applied.

Notes and comments on this National Enhancement

- This enhancement is for the natural regeneration of vegetation on the ditch banks. Seeding is not part of this enhancement.
- A minimum of 20 feet and maximum of 60 feet of herbaceous vegetation will establish.
- If the ditch bank is dominated with woody vegetation, and additional 20 feet of natural, early-successional vegetation will be established through natural revegetation, up to 60 feet from ditch bank.



CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666A

Maintaining and improving forest soil quality.

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Soil, Air

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
 - 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

E666A - Maintaining and improving forest soil quality	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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 using 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.
 - 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

CONSERVATION STEWARDSHIP PROGRAM

- 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:

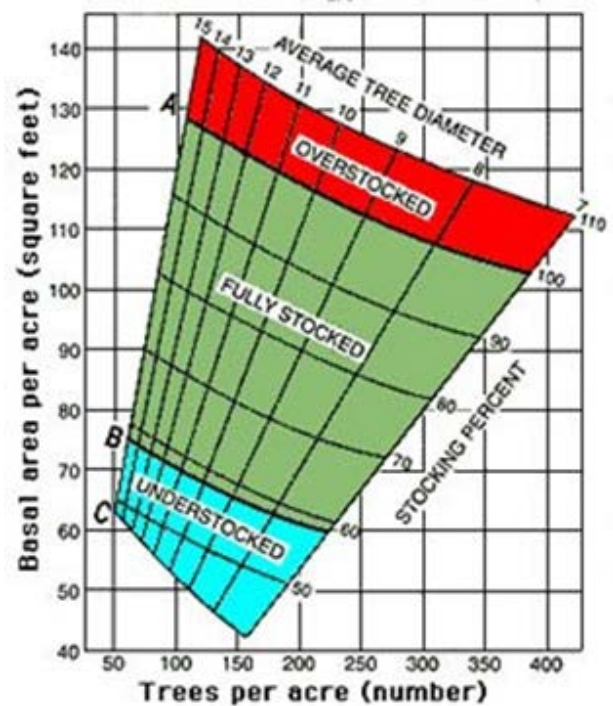
	Habitat Type	Target tons per acre of coarse woody debris
Dry Forests	Ponderosa pine types	5-13 tons/acre
↕	Douglas-fir types	7-14 tons/acre
	Grand fir types	7-14 tons/acre
Moist Forests	Western hemlock types	16-33 tons/acre

- Maintain soil productivity by soil testing and fertilization if needed (including options for fertilizing with manure, biochar, or other organic materials).
- 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.
- 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.

CONSERVATION STEWARDSHIP PROGRAM

- 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:

- 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.
- 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.
- 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.
- 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. Re-vegetate these disturbed areas or close them off to traffic to allow natural vegetation to grow on these areas.



CONSERVATION STEWARDSHIP PROGRAM

- 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, aid 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).
- During implementation, provide technical assistance if requested by the participant.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- 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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666A

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E666A the following addition criteria apply to Indiana:

- Livestock must be excluded from all forested acres enrolled for this enhancement.
- Follow Forest Trails and Landings (655) to limit impacts of roads and landings when harvest of timber occurs during the contract period.
- Waterbars will be constructed and spaced as described in Indiana Logging and Forestry Best Management Practice, 2022 BMP Field Guide, Indiana Department of Natural Resources, Division of Forestry. (DNR: Forestry Publications. Private Lands Management, Best Practices, 2022 BMP Field Guide)
- Follow all NRCS-USFWS *Requirements for the Indiana Bat and Northern Long-Eared Bat* document attached to the Indiana CSP Wildlife Species Guidance (2019).

Notes and comments on the National Enhancement:

- This enhancement can be planned on a tract-by-tract basis or across an entire ownership.
- May not be planned or contracted on the same acres (footprint) with any other 666 Enhancement.
- Soil testing is not needed in existing mature trees stands. Conduct soil testing where nutrients are applied such as in orchards or high mortality spots in young plantations where significance deficiencies in nutrients are suspected.
- Consider the implementation of IN FOTG Standard (472) Access Control to prevent unwanted use of harvest trails.
- Formerly: E666106Z2 and E666107Z



CONSERVATION ENHANCEMENT ACTIVITY

E666D

CONSERVATION STEWARDSHIP PROGRAM

Forest management to enhance understory vegetation

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plants, Animals, Water

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. 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
- Managing the understory vegetation will also reduce the risk of wildfire and promote development of herbaceous plants that benefit wildlife.
- Capture additional moisture and filters the water through the vegetation and soil.
- Managing the understory vegetation will increase available water to plants, minimize run-off and erosion, improve water quality, and limit nutrient entry into ground water.
- 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.

This enhancement provides for management of the understory vegetation in a forested area by mechanical, chemical and/or manual methods to improve the plant species mix and the health of the residual vegetation. Managing the understory vegetation increases available water to the plants, minimizes runoff and erosion, and improves 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.



CONSERVATION STEWARDSHIP PROGRAM

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.
- 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.



CONSERVATION STEWARDSHIP PROGRAM

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.
 - 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 provided the fuel 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. Depending on the resource concern addressing the FMP will also include recommended practices for managing understory vegetation to:
 - Minimize risks of insect and disease outbreaks.
 - Include recommended practices for managing understory vegetation to favor moisture infiltration.
 - The FMP will also include recommended practices for managing understory vegetation to favor wildlife cover and shelter.
 - 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 who will develop a strategy for controlling undesirable understory vegetation.



CONSERVATION STEWARDSHIP PROGRAM

- 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:
 - 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, assist 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

- 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)
- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666D

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E666D the following addition criteria apply to Indiana:

- Livestock must be excluded from all forested acres enrolled for this enhancement.
- When felling trees >5" DBH, follow all *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*. This document is attached to end of the Indiana CSP Wildlife Species Guidance (2019).

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E666D the following additional documentation requirements apply in Indiana:

- Activities "a" and "c" are often not a resource concern in Indiana. Documentation by a NRCS personnel or professional forester is needed, if these activities are not a concern in the area where the enhancement applies.
- When a professional forester is utilized to implement the work, marking trees and groups of trees is not required.
- Woody Residue Treatment Standard (Code 384) is not adopted by Indiana NRCS and is not a requirement for treating slash and debris for this enhancement. However, assure that slash and debris does not pose an unacceptable fire, safety, environmental, or pest hazard.

Notes and comments on the National Enhancement:

- Use appropriate Gingrich stocking charts. Contact NRCS State Forester with questions. Other appropriate stocking charts or tables can be used to determine the acceptable growing stock level (B line stocking), as described in the National job sheet criteria.
- Only plan this enhancement on the acres meeting the above stocking requirements and being treated for understory enhancement. Typically, not planned across an entire ownership or tract.



- Not compatible on the same acres with any other 666 Enhancement.
- Formerly: E666115Z2, E666118Z, E666119Z, E666134Z, E666137Z7

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION ENHANCEMENT ACTIVITY E666F

CONSERVATION STEWARDSHIP PROGRAM

Reduce forest stand density to create open stand structure

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plant, Animal

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 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.

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



CONSERVATION STEWARDSHIP PROGRAM

- 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).



- 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





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 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, assist with interpretation and updates to the Forest Management Plan and activities recommended in the acres targeted for management.



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, provide and explain 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.
- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards (CPSs) as they relate to implementing this enhancement.
 - Brush Management (Code 314)
 - 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 as 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666F

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E666F the following addition criteria apply to Indiana:

- Livestock must be excluded from all forested acres enrolled for this enhancement
- Follow all *Requirements for the Indiana Bat and Northern Long-Eared Bat* document attached to the Indiana CSP Wildlife Species Guidance (2020).
- Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E666F the following additional documentation requirements apply in Indiana:

- Woody Residue Treatment Standard (Code 384) is not adopted by Indiana NRCS and is not a requirement for treating slash and debris for this enhancement. However, assure that slash and debris does not pose an unacceptable fire, safety, environmental, or pest hazard.

Notes and comments on the National Enhancement:

- Foresters are encouraged (but not required) to utilize the Indiana 666 forest Stand Improvement Job Sheet posted on the FTOG site under Section IV, Indiana Standards, Forest Stand Improvement (666).
- Merchantable trees are allowed to be sold, however any trees removed in order to meet this Enhancement must follow the USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat. Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements for removing those individual trees. Participants and loggers are encouraged to seek out possible requirements for non-Federal Actions for T&E Species directly from the USFWS, and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.
- E666F should not be planned property wide or tract wide. Plan E666F only on the acres recommended by the forester to create an open stand structure.



- Not compatible on the same acres with any other 666 Enhancement.
- Formerly: E666132Z2 and E666136Z2

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION ENHANCEMENT ACTIVITY

E666G

CONSERVATION STEWARDSHIP PROGRAM

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

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plant, Animal

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 and improves wildlife habitat and food sources for many species. Some trees near a forest road are 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. A semi-open canopy allows more sunlight to reach the forest floor to promote herbaceous understory plants and reduces maintenance needs by allowing moisture to evaporate from roads. The reduced canopy and herbaceous understory limit woodland fuel buildup and reduce fire intensity.

Criteria:

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

- Apply the enhancement to sites where vegetation on roadsides presents a fire risk, is inadequate for wildlife habitat, or is detrimental to road maintenance. Treat a strip of forest on both sides of the road, as needed and if feasible. Implement the enhancement for a distance of at least 35 feet into the forest stand from the edge of the road, and extend the distance as needed up to 100 feet based on slope, aspect, soils, fuel type, etc. Use criteria in NRCS CPS Fuel Break (Code 383).
- 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



United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666G

CONSERVATION STEWARDSHIP PROGRAM

E666G Reduce forest density and manage understory along roads to limit wildfire risk and improve habitat	May 2020	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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 as part of the treatment process that have 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 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:

- Y Prior to implementation, review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) which contains information needed to meet criteria for this enhancement.
- Y 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.)
- Y 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)
- Y Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- Y Prior to implementation, work with a professional forester who will mark trees and groups of trees to remove and will develop a strategy for controlling undesirable understory vegetation.
- Y 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.
- Y Prior to implementation, take pre-treatment photos of the site to show representative conditions.
- Y 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.



CONSERVATION STEWARDSHIP PROGRAM

- Y During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- Y During implementation, treat a strip of forest on both sides of the road, if needed and feasible. Implement the enhancement for a distance of at least 35 feet into the forest stand from the edge of the road, and extend the distance as needed up to 100 feet from the road based on slope, aspect, soils, fuel type, etc.
- Y During implementation, focus on retaining healthy trees and when available retain trees that provide wildlife benefits such as oaks, hickories, etc.
- Y 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.
- Y During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions.
- Y During implementation, limit the size of debris piles to minimize wildfire hazards.
- Y During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- Y After implementation, take digital photos showing representative post-treatment conditions.
- Y After implementation, notify NRCS that the work has been completed and make treatment documentation available for NRCS review and certification.

NRCS will:

- Y Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - o Fuel Break (Code 383)
 - o Brush Management (Code 314)
 - o Herbaceous Weed Control (Code 315)
 - 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)

- Y 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.
- Υ 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.
- Υ Prior to implementation, provide and explain the state’s Forestry BMP guidelines.
- Υ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- Υ During implementation, provide technical assistance if requested by the participant.
- Υ 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666G

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E666G the following criteria apply in Indiana:

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Livestock must be excluded from all forested acres enrolled for this enhancement
- Tree removal will not exceed 100 feet into the forest stand from the edge of the road.
- When felling trees >5" DBH, follow all *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*.
- No activities will be performed from April 1 through August 1 to protect the primary nesting period for ground nesting birds. Additional restrictions to establishment and management activities may apply, pending the presence of species of concern or critical habitat. Contact the local field office for more information.

Additional Documentation Requirements for Indiana

In addition to the documentation requirements specified in the National job sheet E666G the following documentation requirements apply in Indiana:

- When a professional forester is utilized to implement the work, marking trees and groups of trees is not required.
- Woody Residue Treatment Standard (Code 384) is not adopted by Indiana NRCS and is not a requirement for treating slash and debris for this enhancement. However, assure that slash and debris does not pose an unacceptable fire, safety, environmental, or pest hazard.

Continued on next page

E666G	December 2022	Page 1
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Notes and comments on the National Enhancement:

**CONSERVATION
STEWARDSHIP
PROGRAM**

- Merchantable trees are allowed to be sold, however any trees removed in order to meet this Enhancement must follow the USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat. Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements for removing those individual trees. Participants and loggers are encouraged to seek out possible requirements for non-Federal Actions for T&E Species directly from the USFWS, and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.
- Not compatible on the same acres with any other 666 enhancements.
- Formerly: E666135Z2 and E666136Z1



CONSERVATION ENHANCEMENT ACTIVITY

E666H

CONSERVATION STEWARDSHIP PROGRAM

Increase on-site carbon storage

CONSERVATION PRACTICE: 666 - Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN: Soil, Air

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 matter.

Criteria

- Apply all of the following activities:
 - Retain all snags and downed woody debris of 6" diameter or larger at the base.
 - 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.).
 - 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:
 - Transition from even-aged to uneven-aged management.
 - Use regeneration methods (e.g., group selection, shelterwood, seed-tree, expanding gap) that call for retention of mature trees during the period when advanced regeneration develops.
 - Adopt techniques for maintaining and/or improving soil quality, specifically retention or organic carbon.
 - Maintain canopy cover to shade the forest floor and avoid hastening decomposition.



CONSERVATION STEWARDSHIP PROGRAM

- During forest management activities, apply the following criteria:
 - 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 maintain the stand, as much as possible, consistent with chosen regeneration method, in a fully stocked condition based on appropriate stocking guide.
 - 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.
 - 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. Refer to Conservation Practice Standard Forest Trails and Landings (Code 655) and Road/Trail/Landing Closure and Treatment (Code 654).
 - 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:

- Prior to implementation:
 - develop a new or updated forest management plan (FMP) that may reflect a change in management objectives.
 - review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) that contains information needed to meet criteria for this enhancement.
 - develop an understanding of the management that this is required to increase carbon storage appropriate for the resource setting to include the following activities:
 - implement forest management activities that begin a transition from even-aged to uneven-aged management.
 - retain dead wood and select trees or clumps of trees that are intended to be left on the site throughout their life span.
 - use regeneration methods (e.g., group selection, shelterwood, seed-tree, expanding gap) that require retention of mature trees during the period when advanced regeneration develops.
 - adopt techniques for maintaining and/or improving soil quality, specifically retention of organic carbon.



CONSERVATION STEWARDSHIP PROGRAM

- maintain canopy cover to shade the forest floor and avoid hastening decomposition.
 - 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.)
 - Arrange to have a professional forester or wildlife specialist, as part of developing or updating an FMP:
 - identify and map areas, selected trees, or groups of leave trees that can serve as wildlife habitat and that are intended to be left on site throughout their lifespan.
 - describe amounts and condition of standing snags and fallen woody debris with 6" or larger basal diameter.
 - identify and map trails or roads that can be planned for closure.
 - Recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
 - Forest Trails and Landings (Code 655)
 - Road/Trial/Landing Closure and Treatment (Code 654)
 - Woody Residue Treatment (Code 384)
 - Acquire all necessary approvals and permits (i.e., local, state, or federal, as applicable).
- During implementation:
- Follow FMP guidelines follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
 - Follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and in specifications provided by NRCS, to ensure that:
 - overstory tree and understory species are retained to achieve all planned purposes and landowner objectives.
 - establish required spacing, density, size-class distribution, number of trees, and amount of understory species to be retained.
 - schedule treatments to maintain the stand, as much as possible, consistent with the chosen forest regeneration method, in a fully stocked condition based on appropriate stocking guide.
 - avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
 - Evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria, as needed.
- After implementation:
- Ensure that retained leave areas are properly protected.
 - Update the FMP to documentation treatment acres, completion dates and methods, and document representative treatments with digital photos.



- Notify NRCS that the work has been completed and make treatment documentation available for NRCS review and certification.

CONSERVATION STEWARDSHIP PROGRAM

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)
 - Woody Residue Treatment (Code 384)
 - Provide technical assistance in, as needed:
 - 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.
 - Ensure that the participant has a current and complete FMP describing all treatment activities for the resource setting.

- During implementation:
 - Provide technical assistance if requested by the participant.
 - Evaluate any planned changes to verify they meet the enhancement criteria.

- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666H

Additional Criteria for Indiana

In addition to the criteria specified in the National Job Sheet E666H the following additional criteria apply to Indiana:

- Livestock must be excluded from all forested acres enrolled for this enhancement.
- A FMP is required when used on Associated Ag. Land for Farmstead settings.
- Follow all NRCS-USFWS *Requirements for the Indiana Bat and Northern Long-Eared Bat* document attached to the Indiana CSP Wildlife Species Guidance (2020).

Notes and comments on the National Enhancement:

- This enhancement updates a FMP to include at least one of the four activities that maintain and increase carbon storage.
- Uneven-aged management is often appropriate for shade tolerant species such as beech and maple. Uneven-aged regeneration methods are not appropriate for shade tolerant species such as oak and hickories.
- Not compatible on the same acres with any other 666 Enhancement.
- E666H can be planned property wide or tract wide but will limit the use of any other 666 enhancement during the life of the contract.
- Formerly: E666130Z



CONSERVATION ENHANCEMENT ACTIVITY

E666I

CONSERVATION STEWARDSHIP PROGRAM

Crop tree management for mast production

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Plant, Animal

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.

E666I Crop tree management for mast production	August 2019	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 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.
- 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



CONSERVATION STEWARDSHIP PROGRAM

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:

- 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.)
- During implementation, release all crop trees on all sides by killing competing trees within 15 feet of the crop tree’s crown/canopy.
- During implementation, retain a diversity of tree species, cut damaging vines away from crop trees, and treat invasive plants that may stress crop trees.
- 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.
- During implementation, protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.

NRCS will:

- 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.
- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement (as applicable for the site):
 - Forest Stand Improvement (Code 666)
 - Integrated Pest Management (Code 595)
 - Forest Trails and Landings (Code 655)
 - Access Road (Code 560)
 - Woody Residue Treatment (Code 384)
 - Prescribed Burning (Code 338)



CONSERVATION STEWARDSHIP PROGRAM

- 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666I

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E666I the following additional criteria apply in Indiana:

- Livestock must be excluded from all forested acres enrolled for this enhancement.
- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- The list of Indiana mast producing species are found in the Indiana Biology Tech. Note: Upland Wildlife Habitat Management (FOTG, Section I, Technical Notes) under both soft mast and hard mast producing trees (page 12-15). Select crop trees found in the forest canopy (typically species with an average mature height above 30 feet tall).
- Follow all *Requirements for the Indiana Bat and Northern Long-Eared Bat* document attached to the Indiana CSP Wildlife Species Guidance (2020).

Notes and comments on the National Enhancement:

- Generally, identify 20 to 75 crop trees per acre. Final harvested crop trees may result in as few as 10-20 crop trees per acre. Planners should keep in mind the requirement of releasing at least 15 feet of the crop tree’s crown/canopy when determining the number of crop trees per acre.
- Removed trees are allowed to be sold, however any trees removed in order to meet this Enhancement must follow the *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*. Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements for removing those individual trees. Participants and loggers are encouraged to seek out possible requirements for non-Federal Actions for T&E Species directly from the USFWS and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.
- Non compatible on the same acres with any other 666 Enhancement.



- E666I is not typically planned property or tract wide but should be planned only on the acres having desirable crop trees that need to be released.
- Formerly E666132Z1

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION ENHANCEMENT ACTIVITY

E666J

CONSERVATION STEWARDSHIP PROGRAM

Facilitating oak forest regeneration

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land

RESOURCE CONCERN: Plants, Animals

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Facilitate oak regeneration following a forest stand improvement treatment for natural oak regeneration (e.g., a regeneration cut). After a regeneration cut, competition from invasive brush and undesirable tree and shrub species often suppresses successful establishment of oak seedlings and saplings. This enhancement will release seedling and sapling oaks from competing invasive plants and other undesirable species, and thin stump sprouts. A forester will monitor site conditions, treat competition, protect seedlings, and recommend additional follow-up treatments as needed. The enhancement protects investments in oak regeneration by providing for follow-up activities that require the expertise of a professional forester.

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 (FMP) in consultation with NRCS personnel and a professional forester to direct the management of the property. The FMP will include guidelines for the amount of advanced oak regeneration needed to achieve the desired future condition. It will describe the types of competition or other stressors that threaten oak survival and recruitment in the area, and recommend facilitating controls such as prescribed burning, chemical, and mechanical treatments to achieve desired outcomes. The FMP will also include guidelines for future inspection and monitoring, types of forest health impacts or stand damage to look for during inspections, and potential supplementary activities that may be needed to achieve additional oak recruitment and regeneration.



CONSERVATION STEWARDSHIP PROGRAM

This enhancement may be applied only to forest stands that have already had a seed tree, shelterwood, thinning, or other silvicultural treatment designed to regenerate oak. The stands must contain an adequate amount of oak regeneration in the seedling and/or sapling stages, sufficient to achieve stand objectives if they survive and become fully established. The stands must also have evidence that the oak regeneration is not “free to grow” due to the presence of competing species. This enhancement is not appropriate for stands that have reached the pole timber size class because they are considered fully established at that point and stand management activities will be different.

- A forestry specialist will inspect the stand and identify existing or potential species of harmful insects, tree diseases, and invasive plants, as well as other biotic and abiotic (i.e. ice storms, drought, flooding, etc.) impacts on forest growth, health, structure and/or composition.
- A forestry specialist will conduct regeneration surveys according to methods described in the NRCS National Forestry Handbook, Title 190, Section 636.2.
- The forestry specialist will make recommendations for short-term treatments as needed. A skilled laborer will implement appropriate activities such as applying mechanical and spot chemical treatments, and/or installing tree protection.
- In appropriate settings, prescribed burning may be used to control vegetative competition after oak root systems are sufficiently established to re-sprout after a fire. With the recommendation of a forestry specialist, use NRCS Conservation Practice Standard Prescribed Burning (Code 338), or CSP Enhancement E338B, Short-interval burn.
- The forestry specialist will recommend additional practices as needed to correct undesirable forest health conditions. Practices may include: NRCS Conservation Practice Standards Integrated Pest Management (Code 595), Brush Management (Code 314), Herbaceous Weed Control (Code 315).



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Y Prior to implementation, the participant will obtain a new or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will identify regeneration needs, competition that impedes oak regeneration and recruitment, other forest health concerns, and activities recommended for implementation. The participant will make the FMP available for NRCS review.
- Prior to implementation, arrange for a forestry specialist to inspect the stand and perform the tasks identified in this enhancement.
- Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) conservation practice standard and other applicable implementation documentation and use the information to meet the criteria of this enhancement.
- During implementation, the participant and the forestry specialist will ensure that regenerating oak trees are protected from any damage.
- During implementation, notify NRCS if there are any planned changes, to verify they meet the enhancement criteria.
- After implementation, notify NRCS that the work has been completed, and make the following information available to NRCS: dates that inspection was conducted, methods used, and the treatments applied to remove competition and protect young oaks.

NRCS will:

- Prior to implementation, verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet. Verify that a forest stand improvement treatment to initiate oak regeneration was previously applied, that regenerating seedling and/or sapling oaks are present, and that oak survival is threatened by competing species and/or other environmental stressors.
- Prior to implementation, provide assistance with interpretation of a new 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:
 - o Forest Stand Improvement (Code 666)



CONSERVATION STEWARDSHIP PROGRAM

- Integrated Pest Management (Code 595)
 - Prescribed Burning (Code 338)
 - Brush Management (Code 314)
 - Herbaceous Weed Control (Code 315)
 - Tree/Shrub Establishment (Code 612)
 - Tree/Shrub Site Preparation (Code 490)
- As needed, prior to implementation, NRCS will provide technical assistance by:
- Preparing specifications for applying this enhancement for each site using approved guide sheets, implementation requirements, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and discussing the details with the participant.
 - Providing methods for conducting regeneration surveys.
- During implementation, provide technical assistance if requested by the participant.
- During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, certify 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666J

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E666J the following additional criteria apply in Indiana:

- Livestock must be excluded from all forested acres enrolled for this enhancement
- Follow all *Requirements for the Indiana Bat and Northern Long-Eared Bat* document attached to the Indiana CSP Wildlife Species Guidance (2020).
- A professional forester will verify the previous practices and site conditions, as stated in the first “NRCS will” bullet.
- A professional forester will determine the most appropriate regeneration survey.
- This enhancement is also appropriate for temporary forest openings (also called: group openings, and patch clear cuts)

Notes and comments on this National Enhancement:

- Trees in the seedling and sapling stage are typically below 10 feet tall and/or below 4 inches in D.B.H.
- Foresters are encouraged (but not required) to utilize the Indiana 666 forest Stand Improvement Job Sheet posted on the FTOG site under Section IV, Indiana Standards, Forest Stand Improvement (666).
- Removed/competing trees will typically not be a merchantable size.
- Invasive species can quickly establish in timber harvests and openings. Monitor the site for invasive species and follow-up with appropriate treatments, if needed. Follow CPS 314 Brush Management and 315 Herbaceous Weed Control.
- Not Compatible with: E314A, Not compatible on the same acres with any other 666 enhancements.



- This enhancement should not be planned property or tract wide. Only plan this enhancement on the acres that have recently had a seed tree, shelterwood or regeneration harvest and have established oak regeneration that is “free to grow.”
- Formerly: E666132Z3

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION ENHANCEMENT ACTIVITY

E666K

CONSERVATION STEWARDSHIP PROGRAM

Creating structural diversity with patch openings

CONSERVATION PRACTICE: 666 - Forest Stand Improvement

APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

Forest stand improvement that creates patch openings. Size, shape, location, 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 by forest type and by tree species desired from natural regeneration. The treatment will create or maintain diversity in stand composition and structure, increase pest resistance, reduce wildfire risk, and enhance wildlife food availability. Openings may provide regeneration sites, restore natural plant communities, and achieve or maintain a desired understory plant community for wildlife habitat.

Criteria

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Apply treatment to one of the following forest stand conditions:
 - Existing stand is already at an “acceptable growing stock” level. For tree species with stocking charts, this is at the B line, the lowest level of a fully stocked stand. 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.
 - Dry Western forests that have been thinned in the last 5 years. Patch cutting seeks to restore variable and patchy structural conditions typical of benchmark ecological sites.



CONSERVATION STEWARDSHIP PROGRAM

- Closed canopy pine plantation monoculture with few native herbaceous or shrub plants in the understory. Select sites with ≥ 50 square feet of basal area per acre and pine species included on the NRCS state list of pine species that have the ability to regenerate from seed.
- Create openings of varying sizes. Vary shapes of openings to correspond with land features (slope, aspect, soil moisture), or to utilize sunlight effectively to encourage regeneration within the opening, as needed.
 - The size of patches to be treated for wildlife can vary from .025 to 10 acres, be distributed throughout the forest, and cannot total more than 30% of the acres meeting the “acceptable growing stock” level.
 - Size of patches to be treated for degraded plant condition can vary from .025 to 10 acres, be distributed throughout the forest, and cannot total more than 50 percent of the acres meeting the “acceptable growing stock” level.
- Preferentially locate patch openings in areas that lack crop trees or wildlife trees. In dry western forests, locate patches in areas more open in the past due to higher fire frequency and intensity (on hills and knolls, and west- and south-facing slopes). Locate openings 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 value 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



CONSERVATION STEWARDSHIP PROGRAM

- 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.
- 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

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant will:

- Prior to implementation:
 - work with NRCS or your forester to develop or update a forest management plan which will include management practices to address the documented resource concerns.
 - 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. Document that the trees are present and vigorous enough to regenerate.
 - determine the resource concern, size, shape, location, and distribution of openings throughout the forest. In dry western forests, locate patches in areas more open in the past due to higher fire frequency and intensity (on hills and knolls, and west- and south-facing slopes). The size of each opening ranges from 0.25-10 acres, and the total acreage in openings will be less than 30% of eligible forest acres for wildlife openings and less than 50% of eligible forest acres for degraded plant condition 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.
 - protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.
 - notify NRCS if there are any planned changes, to verify they meet the enhancement criteria.

- 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.



CONSERVATION STEWARDSHIP PROGRAM

- 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.
 - determining 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.
 - evaluating stocking and acceptable growing stock for both pre- and post-treatment stand conditions.
 - identifying desired species to be regenerated in the openings, as needed.
- provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement (as applicable for the site):
 - Forest Stand Improvement (Code 666)
 - Woody Residue Treatment (Code 384)
 - Prescribed Burning (Code 338)
 - Integrated Pest Management (Code 595)
 - Forest Trails and Landings (Code 655)
 - Access Road (Code 560)
- During implementation:
 - evaluate any planned changes to verify they meet the enhancement criteria.
 - provide technical assistance if requested by the participant.
- After Implementation:
 - verify the planned patch openings were established to specifications developed for the site 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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666K

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E666K the following additional criteria apply in Indiana:

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Livestock must be excluded from all forested acres enrolled for this enhancement
- Post treatment basal area within each patch will be reduced to no more than 10 by cutting/killing all trees >2 inches in diameter at breast height; all oaks will be allowed to stump sprout to provide additional regeneration.
- Forested acres must contain species for regeneration native to Indiana from the following list:

Hard Mast Producing	Soft Mast or Light Seeded Species
Oaks	Blackgum
Persimmon	Cottonwood
Hickory/Pecan	Yellow Poplar (Tuliptree)
Black Walnut / Butternut	Sycamore
Kentucky Coffeetree	Sugar Maple
	Red Maple
	Silver Maple

- Follow all *Requirements for the Indiana Bat and Northern Long-Eared Bat* document attached to the Indiana CSP Wildlife Species Guidance (2020). Patch opening are equivalent to NRCS Temporary Forest Openings (TPO) practice. Follow all bat requirements for TPO.

Notes and comments on this National Enhancement:



CONSERVATION STEWARDSHIP PROGRAM

- Woody Residue Treatment Standard (Code 384) is not adopted by Indiana NRCS and is not a requirement for treating slash and debris for this enhancement. However, assure that slash and debris does not pose an unacceptable fire, safety, environmental, or pest hazard.
- Windrowing, wildlife piles, chipping, or firewood removal is not required but will be based on recommendations from a forester.
- For oaks, >300 advanced regeneration seedlings/saplings per acre at least 3 feet in height recommended to be present prior to cutting
- Invasive species can quickly establish in timber harvests and openings. Monitor the site for invasive species and follow-up if needed with appropriate treatments. Follow CPS 314 Brush Management and 315 Herbaceous Weed Control.
- Enhancement cannot be used for land conversion.
- Merchantable trees are allowed to be sold, however any trees removed in order to meet this Enhancement must follow the USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat. Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements for removing those individual trees. Participants and loggers are encouraged to see out possible requirements for non-Federal Actions for T&E Species directly from the USFWS, and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.
- Not compatible on the same acres with any other 666 Enhancement.
- E666K is only planned on the acres that will be turned into patch openings. This enhancement is not to be planned property wide or tract wide.
- E666K requires approval from the NRCS State Biologist or State Forester to ensure compliance with USFWS Bat Habitat Guidelines.
- Formerly: E666133Z1, E666136Z3 and E666137Z6



CONSERVATION ENHANCEMENT ACTIVITY

E666L

CONSERVATION STEWARDSHIP PROGRAM

Forest Stand Improvement to rehabilitate degraded hardwood stands

Conservation Practice 666: FOREST STAND IMPROVEMENT

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plant, Animal

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 clear-cuts (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.

- 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.

E666L Forest Stand Improvement to rehabilitate degraded hardwood stands	September 2023	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- Areas of 0.25 acre or more with no crop trees will be clear-cut, 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 or concurrently with the cut.
- 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.
- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.



CONSERVATION STEWARDSHIP PROGRAM

- 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:

- 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 in what stands they will be implemented.
- Prior to implementation, work with professional forester and/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.
- Prior to implementation, work with professional forester and/or NRCS to protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation.
- Prior to implementation, work with professional forester and/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.
- Prior to implementation, work with professional forester and/or NRCS to delineate areas to be treated on a map (s).
- Prior to implementation, work with professional forester and/or NRCS to complete an Implementation Requirements sheet for NRCS Conservation Practice Standard Forest Stand Improvement (Code 666). Depending on method(s) specified in the plan, address:
 - Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.).
 - Identify areas of 0.25 to 1 acre in size that will have group selection.
 - Identify areas of 1-3 acres in size that will be clear cut.
 - Specify how undesirable trees and shrubs will be cut or killed.

Stand #	Treatment Option

- Invasive species will be treated prior to implementation or concurrently with the cut.



CONSERVATION STEWARDSHIP PROGRAM

- During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- 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).
- During implementation, cut damaging vines away from crop trees.
- After implementation, notify NRCS that implementation has been completed.

NRCS will:

- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
 - Integrated Pest Management (Code 595)
 - Woody Residue Treatment (Code 384)
 - Prescribed Burning (Code 338)
 - Access Road (Code 560)
- Prior to Implementation, provide and explain, as needed, NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and assist the participant in completing an Implementation Requirements sheet. Depending on method(s) specified in the plan address:
 - Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.).
 - Identify areas of 0.25 to 1 acre in size that will have group selection.
 - Identify areas of 1-3 acres in size that will be clear cut.
- 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.
- 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) Implementation requirements sheet.
- Prior to implementation, if temporary access is needed, provide participant with NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.



CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, as needed, provide assistance in delineating treatment area on a map(s).
- Prior to implementation, verify that invasive species have been treated or treating concurrently with cut.
- Prior to implementation, Wildlife Habitat Evaluation Guide (WHEG) or State equivalent must be completed. **Existing condition WHEG score:** _____ **Planned after implementation WHEG score:** _____
- During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- 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).
- After implementation verify that damaging trees have been removed from crop trees.
- After implementation, Wildlife Habitat Evaluation Guide (WHEG) or State equivalent must be completed and have a value of 0.75 or greater. **After implementation WHEG score:** _____
- After Implementation, verify the enhancement was implemented according to the NRCS Conservation Practice Standard Forest Stand Improvement (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

E666L Forest Stand Improvement to rehabilitate degraded hardwood stands	September 2023	Page 6
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666L

Additional Criteria for Indiana

In addition to the criteria specified in the National job sheet E666L the following additional criteria apply in Indiana:

- Livestock must be excluded from all forested acres enrolled for this enhancement
- Follow all *Requirements for the Indiana Bat and Northern Long-Eared Bat* document attached to the Indiana CSP Wildlife Species Guidance (2020).

Notes and comments on this National Enhancement:

- This enhancement is not under the Wildlife Habitat Resource Concern thus an existing WHEG of 0.5 is not required. Since the WHEG does not assign individual points to Existing Conditions less than 0.5, then indicate “< 0.5” if the Existing condition WHEG score is less than 0.5.
- All minimum 0.5 existing WHEG items/conditions are needed in addition to items for the remaining 0.25 index points for the “Planned after implementation WHEG score” minimum of 0.75 or greater.
- Planned acres not receiving group selection or small clearcut must receive crop tree release.
- Woody Residue Treatment Standard (Code 384) is not adopted by Indiana NRCS and is not a requirement for treating slash and debris for this enhancement. However, assure that slash and debris does not pose an unacceptable fire, safety, environmental, or pest hazard.
- Foresters are encouraged (but not required) to utilize the Indiana 666 forest Stand Improvement Job Sheet posted on the FTOG site under Section IV, Indiana Standards, Forest Stand Improvement (666).
- Removed trees are allowed to be sold, however any trees removed in order to meet this Enhancement must follow the *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*. Trees removed or harvested not associated with this enhancement are not considered a Federal Action by NRCS. NRCS has no requirements



CONSERVATION STEWARDSHIP PROGRAM

for removing those individual trees. Participants and loggers are encouraged to seek out possible requirements for non-Federal Actions for T&E Species directly from the USFWS and are liable for any requirements. NRCS does not oversee or provide technical assistance in harvesting timber.

- Invasive species can quickly establish in timber harvests and openings. Monitor the site for invasive species and follow-up with appropriate treatments, if needed. Follow CPS 314 Brush Management and 315 Herbaceous Weed Control.
- Not compatible on the same acre with any other 666 enhancements.
- E666L should be utilized on the worst of the worst properties that have not been managed by a forester and have been severely degraded by past unregulated harvesting in the form of diameter limit cutting or severe high grading. Stands impacted by ice storms or tornados may be suitable for this enhancement.
- E666L should only be planned on the acre needing major corrective action and is not typically planned property or tract wide.
- Formerly: E666133X



CONSERVATION ENHANCEMENT ACTIVITY

E6660

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: Animals

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Improve wildlife habitat through creation and retention of snags, den trees, wolf trees, forest stand structural diversity, and coarse woody debris on the forest floor, to provide cover, shelter, and other habitat features 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, wolf trees, coarse woody debris, and/or brush piles for shelter, cover, perches, nest sites, rearing sites, etc.
- 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, wolf trees, nest trees, 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.

E6660 Snags, den trees, and coarse woody debris for wildlife habitat	May 2020	Page 1
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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 or perches, 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 Conservation Practice Standard 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:

- Y Prior to implementation, participant will work with NRCS to identify the desired wildlife species that use snags, den trees, coarse woody debris, perches, and/or brush piles for shelter, cover, nest sites, and/or rearing sites, and are likely to benefit from the enhancement.
- Y Prior to Implementation, participant will work with professional forester or NRCS to delineate on a map the acres that the enhancement would be applied.
- Y Prior to implementation, participant will work with professional forester or NRCS to estimate how many snags, wolf trees, den trees, coarse woody debris, and/or brush piles are present per acre on the acres identified.
- Y 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.

Desired 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	

- Y During implementation, notify NRCS if any planned changes to verify they meet the enhancement criteria.
- Y During implementation, keep a written log and take digital photos of snag/den trees created and approximate locations on a map.



CONSERVATION STEWARDSHIP PROGRAM

- Y After implementation, notify NRCS that the work has been completed; submit digital photos.
- Y After implementation, retain digital photos for NRCS to verify practice has been completed.

NRCS Will:

- Y 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 Upland Wildlife Habitat Management (Code 645)
- Y 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.
- Y Prior to implementation, assist the landowners to delineate on a map the acres that the enhancement would be applied.
- Y 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.
- Y During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- Y After implementation, verify that the number of snags, den trees, coarse woody debris, and/or brush piles have been created.



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

E6660 Snags, den trees, and coarse woody debris for wildlife habitat	May 2020	Page 6
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INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E6660

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E6660 the following criteria apply to Indiana:

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Livestock must be excluded from all forested acres enrolled for this enhancement.
- When dropping trees, follow all *USFWS/NRCS Requirements for the Indiana Bat and Northern Long-Eared Bat*. This document is attached to end of the Indiana CSP Wildlife Species Guidance (2020).
- “Targeted Species” = Indiana Bat, Blue-winged warbler, or any woodland species identified using ArcGIS Pro (i.e. 52-tool) for the planned area.
- Per acre:
 - A minimum of 8-10 snag/den trees, spread equally across a range of size classes 4 - >20 inches in DBH.
 - Leave or establish five (5) downed logs, 12 inches or greater in diameter at the largest end, to provide coarse woody debris.
- If no available trees are in a size class then additional snags/den trees will be created from another size class. (For example: If no 6-10 DBH trees are present, then additional 2 or more snags/den trees will be created from the 10-20 inch DBH size class)

Notes and comments on the National Enhancement:

- Snags and dens can be created by girdling, basal bark spray, or hack & squirt methods. See *Indiana Technical Note #5 666 Forest Stand Improvement Methods*.
- Downed coarse woody debris must be dropped and on the ground.
- Not Compatible with: E338B, E338140Z
- Not compatible on the same acres with any other 666 enhancement.



- E6660 should be planned on the acres where snags will be created and not property wide or tract wide if the forest condition does no favor or require the creation of snags.
- Formerly: E666137Z1

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION ENHANCEMENT ACTIVITY

E666P

CONSERVATION STEWARDSHIP PROGRAM

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: Animals

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 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



CONSERVATION STEWARDSHIP PROGRAM

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.
 - 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.
 - 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.
- Prior to implementation, obtain a wildlife habitat management plan 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, 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).
- 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.
 - Wildlife habitat plan treatment map.
 - Field log.
 - Digital photographs.



CONSERVATION STEWARDSHIP PROGRAM

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



INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666P

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E666P the following addition criteria apply to Indiana:

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Livestock must be excluded from all forested acres enrolled for this enhancement
- Follow all *NRCS-USFWS Requirements for the Indiana Bat and Northern Long-Eared Bat* document attached to the Indiana CSP Wildlife Species Guidance (2020).

Notes and comments on the National Enhancement:

- Follow guidance in the Indiana Supplement: Wildlife Species of Concern of Interest to be Considered, and the Indiana CSP Wildlife Habitat Evaluation Guide (WHEG) to determine WHEG scores for this enhancement. A minimum 0.5 existing value is required to qualify for this enhancement. Activities completed by this enhancement (Planned Score) must meet a minimum of 0.75
- Not compatible on the same acres with any other 666 Enhancement.
- E666P may be planned property or tract wide but will severely limit the use of other 666 enhancements during the life of the contract.
- Formerly: E66613722

Additional Guidance for Indiana:

Summer habitat includes forested areas that have potential roost trees. Potential roost trees are live trees or standing snags > 5 inches dbh that have exfoliating bark, cracks, crevices or hollows. Loose or exfoliating bark may be slabs or plates of bark on dead, diseased or dying trees as well as naturally loose bark found on species such as shagbark and shellbark hickory. Live conifers are not considered potential roost trees for this guidance; however conifer snags with exfoliating or loose bark are considered potential roost trees. Although almost any woody species that gets large enough can be a potential roost tree if the right characteristics develop.



CONSERVATION STEWARDSHIP PROGRAM

The following species of trees have been identified as having relatively high value as potential Indiana bat maternity roost trees:

shagbark hickory (<i>Carya ovata</i>)	northern red oak (<i>Quercus rubra</i>)
shellbark hickory (<i>Carya laciniosa</i>)	post oak (<i>Quercus stellata</i>)
bitternut hickory (<i>Carya cordiformis</i>)	white oak (<i>Quercus alba</i>)
silver maple (<i>Acer saccharinum</i>)	slippery elm (<i>Ulmus rubra</i>)
sugar maple (<i>Acer saccharum</i>)	American elm (<i>Ulmus americana</i>)
green ash (<i>Fraxinus pennsylvanica</i>)	black locust (<i>Robinia pseudoacacia</i>)
white ash (<i>Fraxinus americana</i>)	(Tree species based on literature and unpublished roosting data).
eastern cottonwood (<i>Populus deltoides</i>)	

On average, at least 3 live trees per acre >20" dbh (of the high-value species listed above) shall always be maintained in the stand (a tree with <10% live canopy should be considered a snag). These "leave trees" must be the largest trees of the listed species remaining in the stand. An additional 6 live trees per acre >11" dbh (of the species listed above) must also be maintained. The "per acre" requirement can be expressed as an average per acre but should be relatively evenly spread across the treated acres.

If there are no trees >20" dbh to leave, then 16 live trees per acre must be left, and these must include the largest specimens of the listed species remaining in the stand.

Generally, bats prefer to use the largest trees for roost trees. These trees are more likely to develop the conditions for good roost trees such as presence of crevices, cracks or exfoliating bark. Especially important is that the trees have solar exposure to create desired roost conditions. Therefore, the creation and retention of potential roost trees that are some of the larger trees in the stand, especially those extending above the canopy, is preferred.

Creation and enhancement of potential roost trees consists of both creating snags and improving use of live trees with exfoliating bark or other desirable characteristics.

- a. Snags are created by girdling or killing live trees; select trees with the best potential for developing bat roost features; oaks, hickories and ashes are preferred.
- b. Living trees with desirable roost characteristics may be improved by removing competing trees adjacent to the roost tree; this improves viability of the roost tree and increases solar exposure to the tree. Generally removing any trees with canopies touching the



roost tree should be removed. Shellbark and shagbark hickories are the preferred species but other large trees with suitable roost characteristics may also be good targets for enhancement.

CONSERVATION STEWARDSHIP PROGRAM





CONSERVATION ENHANCEMENT ACTIVITY

E666R

CONSERVATION STEWARDSHIP PROGRAM

Forest songbird habitat maintenance

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Adopts guidelines and methods developed by the Forest Bird Initiative of the Vermont Audubon Society, to preserve habitat features following a forest stand improvement treatment designed to create habitat for a suite of forest-dwelling neotropical migratory songbirds. It includes developing or updating a forest management plan, inspecting and tending forest habitat, and monitoring bird populations. It protects investments in habitat creation by providing for follow-up activities that require the expertise of a professional forester or biologist. This enhancement is appropriate for states in forest songbird flyways, and is applicable in middle-aged, older-aged, or all-aged forests.

Criteria

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

- This enhancement is used periodically following an initial treatment designed to create habitat elements specifically for neotropical migratory forest songbirds; habitat creation may include forest gaps, snags, cavities, supplemental plantings of trees or shrubs, removal of undesirable invasive species, etc. States will determine when to use the enhancement; one year following the initial treatment is the soonest it should be applied, and after that it should be used every three to five years to check for changed conditions.



CONSERVATION STEWARDSHIP PROGRAM

- Update the current Forest Management Plan (FMP) to include guidelines to maintain habitat for forest birds. The FMP will include guidelines for inspection and monitoring, identify the types of forest health impacts or stand damage to look for during inspections, and will describe the types of activities that may be needed to preserve existing habitat conditions.
- A forestry specialist will inspect the stand and identify species of harmful insects, tree diseases, invasive plants, as well as other biotic and abiotic (i.e. ice storms, drought, flooding, etc.) impacts on forest growth, health, structure and/or composition.
- The forestry specialist will make recommendations for short-term treatments as needed. A skilled laborer will implement appropriate activities, such as applying mechanical and spot chemical treatments.
- The forestry specialist will make recommendations for additional practices needed to correct undesirable forest health conditions. Practices may include: NRCS Conservation Practice Standards Integrated Pest Management (Code 595), Brush Management (Code 314), and Herbaceous Weed Control (Code 315).
- A forestry or wildlife specialist will evaluate and report on the condition of songbird habitat elements using protocols in “Bird Habitat Inventory Field Procedures” from Audubon Vermont (http://vt.audubon.org/sites/g/files/amh751/f/bidhab_protocol_web_0.pdf), or a similar set of protocols adopted by the respective state’s wildlife management agency or equivalent state-level entity. The forestry specialist will recommend initial treatments and additional practices, if needed, to the participant(s) and NRCS.
- During the bird breeding season, a trained forestry or wildlife specialist will conduct a bird census according to protocols adopted by the respective state’s wildlife management agency or equivalent state-level entity.
- The participant will control access to the stand as needed to prevent resource damage, and to reduce disturbance to songbirds and other wildlife.



CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, review the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) or appropriate state guidance document and use the information to meet the criteria of this enhancement. Also review Forest Bird Initiative guidance from the Vermont Audubon Society at <http://vt.audubon.org/conservation/working-lands/forest-bird-initiative-1>, or equivalent state-level guidance provided by NRCS.
- Prior to implementation, the participant will obtain a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP will include guidelines for inspection and monitoring, the types of forest health impacts or stand damage to look for during inspections, and potential activities that may be needed to preserve existing habitat conditions. The participant will make the FMP available for NRCS review.
- Prior to implementation, make arrangements for a forestry and/or wildlife specialist to inspect the stand and complete a habitat monitoring report, conduct a bird survey, and accomplish other tasks called for in the enhancement.
- During implementation, notify NRCS if there are any planned changes, to verify that they meet enhancement criteria.
- During implementation, keep a written log and take digital photos.
- After implementation, retain a map showing the location of activities, and photos. Make the map and photos available to NRCS for verification.
- After implementation, notify NRCS that the work was completed, and make the following information available to NRCS: dates that inspection was conducted, methods used, reports on bird surveys and habitat monitoring, photos, and a map showing bird monitoring points.
- After implementation, control access to the stand as needed to prevent resource damage, and to reduce disturbance to songbirds and other wildlife.



CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- Prior to implementation, verify the enhancement activity is planned for acres that meet the criteria in the enhancement guide sheet, by reviewing the existing FMP or other documentation of treatment objectives and implementation, and through field verification.
- Prior to implementation, assist with the 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)
 - Brush Management (Code 314)
 - Herbaceous Weed Control (Code 315)
- As needed, prior to implementation, NRCS will provide technical assistance by:
 - Providing and explaining the Forest Bird Initiative guidance from the Vermont Audubon Society at <http://vt.audubon.org/conservation/working-lands/forest-bird-initiative-1>, or equivalent state-level guidance on habitat for migratory forest-dwelling birds.
 - Providing methods to be used for conducting bird surveys, using protocols adopted by the state wildlife management agency or equivalent state-level entity.
 - 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.
- During implementation, provide technical assistance if requested by the participant.
- During implementation, evaluate any planned changes to verify they meet enhancement criteria.



- After implementation, certify that the enhancement was completed according to the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) specifications and the enhancement 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.

**CONSERVATION
STEWARDSHIP
PROGRAM**

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





INDIANA SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666R

Additional Criteria for Indiana

In addition to the criteria specified in the National job Sheet E666R the following criteria apply to Indiana:

- Develop or update a forest management plan in consultation with a professional forester to direct the management of the property. The producer will make the forest management plan available to NRCS personnel.
- Contact the Indiana NRCS State Forester or State Wildlife Biologist before using this enhancement.
- Livestock must be excluded from all forested acres enrolled for this enhancement
- Follow all Requirements for the Indiana Bat and Northern Long-Eared Bat document attached to the Indiana CSP Wildlife Species Guidance (2020). Openings are equivalent to NRCS Temporary Forest Openings (TPO) practice between 0.5 to 3 acres. Make sure to follow all bat requirements for TPO.
- Although the national enhancement references the guidance from Audubon Vermont, in Indiana utilize the species information from Indiana's Forestry From the Birds found at: [Forestry for the Birds \(nature.org\)](https://www.nature.org/usa/forestry-from-the-birds)
- Bird survey should identify all birds seen or heard on the property. Electronic survey tools, local birding groups or trained forestry or wildlife specialists may be utilized to conduct the surveys. Sample bird observation form attached.

Notes and comments on the National Enhancement:

- Sale of cut trees is not available through this enhancement.
- Enhancement cannot be used for land conversion.
- Invasive species can quickly establish in timber harvests and openings. Monitor the site for invasive species and follow-up if needed with appropriate treatments. Follow CPS 314 Brush Management and 315 Herbaceous Weed Control.
- Not compatible on the same acres with any other 666 enhancement.



- E666R is typically scheduled property or tract wide to facilitate the maximum coverage for the breeding bird survey and subsequent habitat modification.

CONSERVATION STEWARDSHIP PROGRAM

Silviculture with Birds in Mind – Bird Habitat Field Data Sheet*					
Property Name:				Technician Name:	
Date:				Time:	
Plot Number _____		Canopy Height: (Circle One)		<20 Ft 20-60 Ft >60 Ft	
Overstory (30'+) (Circle Choices)		Uniform or Patchy		Percent Canopy Cover: 0% 25% 50% 75% 100%	
				Vegetation Type: Hardwoods Softwoods Mixed	
Midstory (5-30') (Circle Choices)		Uniform or Patchy		Percent Canopy Cover: 0% 25% 50% 75% 100%	
				Vegetation Type: Hardwoods Softwoods Mixed	
Understory (0-5') (Circle Choices)		Uniform or Patchy		Percent Canopy Cover: 0% 25% 50% 75% 100%	
				Vegetation Type: Hardwood Softwood Mixed	
Soft Mast		Present or Absent		Species Observed:	
Non-native Invasive Woody Plants		Species Observed:		Percent Cover: 0-10% 10-40% >40% >60% over 6ft tall	
Leaf Litter		Adequate or Inadequate		Course Woody Material (greater than 3 feet long, > 10 inches diameter)	
				Number: _____	
Bird Species Observed (sight, sound, physical evidence)		List Bird Species** here:			
Notes on Plot:					

*This table or similar record may be used to document bird observations

**If a target species is observed use an * to designate it on the species list