United States Department of Agriculture

BUFFER ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000BFF1

Buffer Bundle #1

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

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

RESOURCE CONCERNS ADDRESSED: Water, Plant, Air & Animal

BUNDLE LIFE SPAN: 15 years

Enhancement Description

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

Criteria

- All of the component enhancements in the required group, along with one additional component enhancement, must be adopted as shown in the table below.
- If an applicant has already adopted one or more component enhancements within a bundle, the applicant may schedule the bundle as long as the applicant is newly adopting the majority (more than 50 percent) of the component enhancements within the bundle.
- Applicants may choose to adopt a bundle on any portion of the agricultural operation and will be required to install component enhancements on all applicable acres where the bundle is adopted.

- The bundle is scheduled in the year in which all component enhancements in the bundle are applied but no later than the third fiscal year of the contract.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
DO ALL ENHANCMENTS IN THIS GROUP				
E393A				
E327A				
E612D				
PICK ONE FROM THIS GROUP				
E612B				
E612G				

NRCS Documentation Review:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

CROPLAND ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000CPL18

Crop Bundle #18 – Precision Ag

Conservation Practices 340: Cover Crop; 590: Nutrient Management; 595: Integrated Pest Management; 329: Residue and Tillage Management, No-Till and 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (annual & mixed)

RESOURCE CONCERN ADDRESSED: Soil, Water, Air & Animal

BUNDLE LIFE SPAN: 1 year

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually.

Criteria

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

- The bundle, once adopted, may continue to be implemented in all subsequent years through the end of the contract.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E595A				
E590B				
E328D				
E340A				
ADOPT ONE ADDITIONAL COMPONENT ENHANCEMENT FROM THIS GROUP				
E329A				
E345A				

NRCS Documentation Review:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

CROPLAND ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000CPL19

Crop Bundle #19 – Soil Health Precision Ag

Conservation Practices 590: Nutrient Management; 595: Integrated Pest Management, 328 Conservation Crop Rotation, 329: Residue and Tillage Management, No-Till, 327 Conservation Cover and 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (annual & mixed)

RESOURCE CONCERN ADDRESSED: Soil, Water & Animal

BUNDLE LIFE SPAN: 1 year

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually.

Criteria

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

- The bundle, once adopted, may continue to be implemented in all subsequent years through the end of the contract.
- This Bundle may be applied multiple times.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E595A				
E590B				
E328D				
E327A				
ADOPT ONE ADDITIONAL COMPONENT ENHANCEMENT FROM THIS GROUP				
E329C				
E345C				

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

CROPLAND ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000CPL20

Crop Bundle #20 – Soil Health Assessment

Conservation Practices 590: Nutrient Management; 595: Integrated Pest Management, 328 Conservation Crop Rotation, 329: Residue and Tillage Management, No-Till, 327 Conservation Cover and 345: Residue and Tillage Management, Reduced Till

APPLICABLE LAND USE: Crop (annual & mixed)

RESOURCE CONCERN ADDRESSED: Soil, Water & Animal

BUNDLE LIFE SPAN: 1 year

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually.

Criteria

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

CONSERVATION STEWARDSHIP PROGRAM

- The bundle, once adopted, may continue to be implemented in all subsequent years through the end of the contract.
- This Bundle may be applied multiple times.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E595B				
E590A				
E328F				
E327A				
ADOPT ONE ADDITIONAL COMPONENT ENHANCEMENT FROM THIS GROUP				
E329C				
E345C				

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

CROPLAND ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000CPL21

Crop Bundle #21 – Crop Bundle (Organic)

Conservation Practices 484: Mulching, 590: Nutrient Management; 595: Integrated Pest Management, 393: Filter Strip and 612: Tree/Shrub Establishment

APPLICABLE LAND USE: Crop (annual & mixed)

RESOURCE CONCERN ADDRESSED: Soil, Water & Plant

BUNDLE LIFE SPAN: 1 year

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually.

Criteria

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

- This Bundle may be applied multiple times.

CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E595B				
E590A				
E484A				
E393A				
E612D				

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

CROPLAND ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000CPL22

Crop Bundle #22 – Erosion Bundle (Organic)

Conservation Practices 328: Conservation Crop Rotation, 590: Nutrient Management, 595: Integrated Pest Management, 345: Residue and Tillage management, Reduced till, 340: Cover Crop and 327: Conservation Cover

APPLICABLE LAND USE: Crop (annual & mixed)

RESOURCE CONCERN ADDRESSED: Soil, Water & Animal

BUNDLE LIFE SPAN: 1 year

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually.

Criteria

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

CONSERVATION STEWARDSHIP PROGRAM

- The bundle, once adopted, may continue to be implemented in all subsequent years through the end of the contract.
- This Bundle may be applied multiple times.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E595B				
E590A				
E328E				
E345D				
E340A				
E327A				

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

FOREST ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000FST1

Forest Bundle #1

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

APPLICABLE LAND USE: Forest

RESOURCE CONCERNS ADDRESSED: Soil, Water, Plant & Animal

BUNDLE LIFE SPAN: 15 years

Enhancement Description

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

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

Criteria

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

United States Department of Agriculture

CONSERVATION
STEWARDSHIP
PROGRAM

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E666A				
E666D				
E666I				
E666O				
E612G				

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

USDA United States Department of Agriculture

GRAZING ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000GRZ2

Grazing Bundle #2 – Range and Pasture

Conservation Practices 472: Access Control; 382: Fence; and 580: Streambank and Shoreline Protection

APPLICABLE LAND USE: Range and Pasture

RESOURCE CONCERN ADDRESSED: Soil, Water & Animal

BUNDLE LIFE SPAN: 20 years

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually.

Criteria

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

- The bundle, once adopted, may continue to be implemented in all subsequent years through the end of the contract.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E472A				
E382A				
E580A				

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

GRAZING ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000GRZ3

Grazing Bundle #3 – Range and Pasture

Conservation Practices 472: Access Control; 390: Riparian Herbaceous Cover; and 580: Streambank and Shoreline Protection

APPLICABLE LAND USE: Range and Pasture

RESOURCE CONCERN ADDRESSED: Soil, Water & Animal

BUNDLE LIFE SPAN: 10 years

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually.

Criteria

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

- The bundle, once adopted, may continue to be implemented in all subsequent years through the end of the contract.

CONSERVATION STEWARDSHIP PROGRAM

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E472A				
E390B				
E580A				

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

GRAZING ENHANCEMENT BUNDLE

CONSERVATION STEWARDSHIP PROGRAM

B000GRZ4

Grazing Bundle #4 – Range and Pasture

Conservation Practices 472: Access Control; 391: Riparian Forest Buffer; and 580: Streambank and Shoreline Protection

APPLICABLE LAND USE: Range and Pasture

RESOURCE CONCERN ADDRESSED: Soil, Water & Animal

BUNDLE LIFE SPAN: 15 years

Enhancement Description

By implementing this combination of enhancements together, a synergy is achieved that should result in more conservation benefits than would be expected from implementing the enhancements individually.

Criteria

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

- The bundle, once adopted, may continue to be implemented in all subsequent years through the end of the contract.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

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

Component Enhancement Code	Tract, Field No. or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
ADOPT ALL REQUIRED COMPONENT ENHANCEMENTS FROM THIS GROUP				
E472A				
E391C				
E580A				

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

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 species of concern and landscape specific brush habitat functionality in the objectives of the brush management enhancement.

- Brush management will be planned and applied in a manner to meet the habitat requirements for wildlife species of concern as determined by the state's NRCS Wildlife Habitation Evaluation Guide (WHEG).

CONSERVATION STEWARDSHIP PROGRAM

- Evaluate wildlife habitat with the state NRCS WHEG and manage for a value of 0.75 or greater.
- Brush management will be designed to achieve the desired plant community based on species composition, structure, density, and canopy (or foliar) cover or height.
- Conduct treatments during periods of the year that accommodate reproduction and other life-cycle requirements of target wildlife and pollinator species.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ 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.

- ☐ 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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E314A

Brush management to improve wildlife habitat

Conservation Practice NUMBER: 314: Brush Management

Additional Criteria for Missouri

- Prior to implementation, Brush Management Job Sheet (JS-MO-314) will be developed for target vegetation.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- When using grazing animals on forest land, they will be stocked at levels necessary to control the target vegetation according to the Prescribed Grazing Plan. Grazing animals will be removed from forest sites once control of target vegetation is achieved.
- WHEG score following treatment will be 0.75 or greater.

United States Department of Agriculture

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 species of concern and landscape specific brush habitat functionality in the objectives of the brush management enhancement.

- Brush management will be planned and applied in a manner to meet the habitat requirements for wildlife species of concern as determined by the state's NRCS Wildlife Habitation Evaluation Guide (WHEG).

CONSERVATION STEWARDSHIP PROGRAM

- Evaluate wildlife habitat with the state NRCS WHEG and manage for a value of 0.75 or greater.
- Brush management will be designed to achieve the desired plant community based on species composition, structure, density, and canopy (or foliar) cover or height.
- Conduct treatments during periods of the year that accommodate reproduction and other life-cycle requirements of target wildlife and pollinator species.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ 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.

- ☐ 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E314A

Brush management to improve wildlife habitat

Conservation Practice 314: Brush Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E314A the following additional criteria apply in Missouri:
  - Prior to implementation, meet with participant to complete WHEG evaluation at the site. Use the Forest Community Model WHAG, Prairie and Grassland Community Model WHAG, or Savanna and Open Woodland Community Model WHAG, whichever is appropriate.

    Existing WHAG score =_____
  - Prior to implementation confirm brush management and/or grazing management plan objectives and clearly identify the wildlife species of concern for the area through completion of the Brush Management Job Sheet (JS-MO314).

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E314A the following additional documentation requirements apply in Missouri:
  - Records for each treatment area:

CONSERVATION STEWARDSHIP PROGRAM

- If biological control used, the number and species of grazing animals utilized, and/or number and species of introduced insect colonies distributed and the planned time frame of the treatment.
- If grazing by livestock is selected as a biological treatment then a grazing plan must be developed and followed using the NRCS Conservation Practice Standard Prescribed Grazing (Code 528).
- If chemical control is selected a chemical application plan must be developed using the Windows Pesticide Screening Tool (WIN-PST) (NRCS can provide assistance with the tool). Document using the Brush Management Job Sheet JS-MO314.
    - Completed JS-MO314 job sheet, map and photograph(s) of areas before and after treatment(s) required at time of certification.

Post Implementation WHAG score = _____

United States Department of Agriculture

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

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

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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).

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.
    - A map of treated areas.

CONSERVATION STEWARDSHIP PROGRAM

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.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E315A

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

Conservation Practice 315: Herbaceous Weed Treatment

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E315A the following additional criteria apply in Missouri:
    - Clearly identify the desired plant community composition, structure, and function using ecological site descriptions, state and transition models.
    - Identify the target herbaceous species and selected treatment method through the completion of the Herbaceous Weed Treatment Job Sheet (JS-MO315).
        - If chemical control is selected then a chemical application plan must be developed using the Windows Pesticide Screening Tool (WIN-PST) (NRCS can provide assistance with the tool). If needed, mitigation techniques will be documented on the Herbaceous Weed Treatment Job Sheet (JS-MO315).
    - Developing treatment specifications when utilizing grazing animals that are ecologically sound and defensible based on the Ecological Site Description (ESD), state and transition models.

Additional Documentation Requirements for Missouri

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

CONSERVATION STEWARDSHIP PROGRAM

- If biological control used, the number and species of grazing animals utilized, and/or number and species of introduced insect colonies distributed and the planned time frame of the treatment.
- If grazing by livestock is selected as a biological treatment then a grazing plan must be developed and followed using the NRCS Conservation Practice Standard Prescribed Grazing (Code 528).
- Completed JS-MO315 job sheet, map and photograph(s) of areas before and after treatment(s) required at time of certification.

United States Department of Agriculture

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

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

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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).

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.
    - A map of treated areas.

CONSERVATION STEWARDSHIP PROGRAM

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.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E315A

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

Conservation Practice 315A: Herbaceous Weed Treatment

Additional Criteria for Missouri

- Prior to implementation, Herbaceous Weed Treatment Job Sheet (JS-MO-315) will be developed for target vegetation.
- Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- When using grazing animals on forest land, they will be stocked at levels necessary to control the target vegetation according to the Prescribed Grazing Plan. Grazing animals will be removed from forest sites once control of target vegetation is achieved.

United States Department of Agriculture

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

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

   The lists must emphasize as many native species as practical.

2. The habitat planting will include (as a minimum) three early, three mid, and three late flowering species from the NRCS state list including forbs, legumes, vines, shrubs, and/or trees. Plants that produce toxic nectar will not be planted.

3. Any other use of the pollinator habitat area must not compromise its intended purpose.

B. Beneficial insects

1. Identify pest species and associated beneficial insects targeted for control.

2. Inventory existing conditions on the farm to determine habitat needs of selected beneficial insects, including:

   (a) Permanent insectary sites,

   (b) Augmentation of existing hedgerows, field borders or other odd areas adjacent to fields, and/or

   (c) Trap crop areas.

3. Plant selection should be matched to attract identified beneficial insects.

4. Beneficial insect habitat may include either annual or perennial cover. If annual cover is used, the cover must be replanted each year during the life of the contract.

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

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.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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.

NRCS Documentation Review:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E327A

Conservation cover for pollinators and beneficial insects

Conservation Practice 327: Conservation Cover

Additional Criteria for Missouri

Missouri has adopted CPS Wildlife Habitat Planting (Code 420) – for this year only, this enhancement will follow 420. See the following guidance.

- This enhancement is not eligible on areas with an Erosivity Index (EI) greater than 8.
- Purchase specified seed mix or plant materials that meet planting requirements provided by NRCS based on the Missouri NRCS Conservation Practice Standard Wildlife Habitat Planting (420) and the Wildlife and Pollinator Plantings Job Sheet (JS-MO420).
- Refer to the Pollinator, Brood-rearing, and Native Browse Plantings specifications within the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) for seed mix requirements.
    - Grasses are required to be included in all mixes, including on areas with slopes less than 5 percent.
    - A list of approved forbs may be found in the Native Forb Information Sheet (IS-MO643 Native Forb).
- During Implementation, follow habitat establishment and maintenance guidance provided in the Wildlife and Pollinator Plantings Job Sheet (JS-MO420)
    - At a minimum, during the first growing season after planting, the participant will mow the planted area 1 to 3 times depending on re-growth to reduce competition from non-seeded volunteer plants (i.e. foxtail, ragweed, curly dock, etc). Management/maintenance after the 1st growing season will occur on 1/3 or less of the acres.
- Do not use insecticides in pollinator planting and limit use on adjacent lands.

Additional Documentation Requirements for Missouri

The Particpant Will:

After implementation:

- Verify the following for establishment:
    - Planned Planting Method - _____
    - Actual Planting Depth - _____
    - Actual Planting Date - _____
- Provide NRCS with documentation of seedbed preparation, species planted (provide seed tags), and planting rates.
- Provide a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred.
- Provide digital photographs as documentation of pollinator habitat area condition.
    - Take photographs of the planting site the day of planting, or not to exceed 2 weeks after planting, to demonstrate the proper seedbed preparation was accomplished prior to planting.
    - Photos will also be taken to demonstrate that establishment maintenance (mowing) has occurred.
    - For all following fiscal years of the contract, photos will be taken to document that the habitat areas are being maintained and are establishing, preferably during the growing season showing blooming plants.
- When cropland is adjacent to the planting, document which of the following methods were used to limit insecticide use:
  _____ a) create insecticide free buffer 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.

NRCS will:

- Prior to implementation, NRCS will document the slope of the land surface and EI value on all planned areas and will advise the participant on the appropriate seeding specifications for each area to be planted.
- Prior to implementation, provide participant with suitable plant lists based on Missouri job sheets. The Native Forb Information Sheet (IS-MO643 Native Forb) and Wildlife and Pollinator Plantings Job Sheet (JS-MO420) will be provided and discussed.
- Prior to implementation, a completed Wildlife and Pollinator Plantings Job Sheet (JS-MO420) and Seeding Plan created from the Missouri Wildlife Seed Calculator will be provided.
    - At a minimum, any needed grass species and rates will be planned, along with a suitable number of seeds per square foot of Forbs/Legumes based on land slope which will allow a seed vendor to select the appropriate species and amounts to meet the Pollinator, Brood-rearing, and Native Browse Plantings specification in the Wildlife and Pollinator Plantings Job Sheet (JS-MO420).
- Provide all details for successful stand establishment.

United States Department of Agriculture

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

(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

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:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E327B

Establish Monarch butterfly habitat

Conservation Practice 327: Conservation Cover

Additional Criteria for Missouri

Missouri has adopted CPS Wildlife Habitat Planting (Code 420) – for this year only, this enhancement will follow 420. See the following guidance.

- This enhancement is not eligible on areas with an Erosivity Index (EI) greater than 8.
- A minimum planned Monarch WHEG "rating of excellent" will be obtained for the planted area.
- Purchase specified seed mix or plant materials that meet planting requirements provided by NRCS based on the Missouri NRCS Conservation Practice Standard Wildlife Habitat Planting (420) and the Wildlife and Pollinator Plantings Job Sheet (JS-MO420).
- Refer to the Monarch Plantings specifications within the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) for seed mix requirements.
    - Grasses are required to be included in all mixes, including on areas with slopes less than 5 percent.
    - A list of approved forbs may be found in Table 1 and Table 2 of the Monarch Habitat Information Sheet (IS-MO-643Monarch). At least sixty percent of the total PLS per square foot of at least 6 species must come from the Preferred Forbs for Monarchs list in Table 1 of the Monarch Habitat Information Sheet (IS-MO643 Monarch) with a minimum of 3 percent of the mix by PLS per square foot comprised of milkweed (Asclepias spp.) seed.
- During Implementation, follow habitat establishment and maintenance guidance provided in the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) and the Monarch Habitat Information Sheet (IS-MO-643Monarch).
    - The Monarch Habitat Information Sheet (IS-MO643) provides a list of the approved management and/or maintenance activities and time frames for implementation.
    - At a minimum, during the first growing season after planting, the participant will mow the planted area 1 to 3 times depending on re-growth to reduce competition

from non-seeded volunteer plants (i.e. foxtail, ragweed, curly dock, etc). Management/maintenance after the 1st growing season will occur on 1/3 or less of the acres.

- Insecticides will not be used in the habitat planting area and should be limited on adjacent lands. If adjacent crop areas are located within 100 feet of the monarch habitat planting, protect the monarch planting from insecticide drift by obtaining a minimum target index score of 20 from Table 3 in the NRCS 190 Technical Note-AGR-9 (Preventing or Mitigating Potential Negative Impacts of Pesticides on Pollinators using Integrated Pest Management and Other Conservation Practices).

Additional Documentation Requirements for Missouri

The Particpant Will:

After implementation:

- Verify the following for establishment:
  - Planned Planting Method - _____
  - Actual Planting Depth - _____
  - Actual Planting Date - _____
- Provide NRCS with documentation of seedbed preparation, species planted (provide seed tags), and planting rates.
- Provide a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred.
- Provide digital photographs as documentation of the monarch habitat area condition.
  - Take photographs of the planting site the day of planting, or not to exceed 2 weeks after planting, to demonstrate the proper seedbed preparation was accomplished prior to planting.
  - Photos will also be taken to demonstrate that establishment maintenance (mowing) has occurred.
  - For all following fiscal years of the contract, photos will be taken to document that the habitat areas are being maintained and are establishing, preferably during the growing season showing blooming plants.

NRCS will:

- Prior to implementation, NRCS will document the slope of the land surface and EI value on all planned areas and will advise the participant on the appropriate seeding specifications for each area to be planted.
- Prior to implementation, provide participant with suitable larval host plants and nectar plants lists. The Monarch Habitat Information Sheet (IS-MO643 Monarch) and the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) will be provided and discussed.
- Prior to implementation, a completed Wildlife and Pollinator Plantings Job Sheet (JS-MO420) and Seeding Plan created from the Missouri Wildlife Seed Calculator will be provided.
    - At a minimum, any needed grass species and rates will be planned, along with a suitable number of seeds per square foot of Forbs/Legumes which will allow a seed vendor to select the appropriate species and amounts to meet the Monarch Plantings specification in the Wildlife and Pollinator Plantings Job Sheet (JS-MO 420).
- Provide all details for successful stand establishment.

United States Department of Agriculture

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.

- 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 small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a green manure, whether inter-seeded or planted after small grain harvest. Neither the small grain residue nor the cover crop shall be harvested or grazed.

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.
- ☐ Prior to implementation, verify that the crop rotation includes at least two different crops in a minimum three-year crop rotation.
- ☐ Prior to implementation, verify the crop rotation includes at least one resource conserving crop (refer to State Specific List of Resource Conserving Crops).

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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328A

Resource Conserving Crop Rotation

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328A, the following additional criteria apply in Missouri:
    - Select crops or perennial cover from the following list to achieve one of the types of resource conserving crop rotations listed on the National Enhancement E328A, page 2.
        1) Crops grown to maturity - forages listed below are resource conserving crops only when used for seed production:

Barley	Popcorn
Corn, grain	Rice
Corn, sweet	Rye, cereal
Millet, browntop	Sorghum, forage
Millet, foxtail	Sorghum, grain
Millet, Japanese	Sorghum-Sudangrass
Millet, pearl	Sudangrass
Oats	Triticale
Oats, Black	Wheat

        2) Cover crops dominated by any combination of the above listed high residue crops. Cover crops must be established and maintained until late spring or late fall termination according to the Conservation Practice Standard (CPS) Cover Crop (Code 340). Cover crop must achieve 4000 or

more pounds per acre air-dry ground cover produced between planting and termination to be considered high residue cover.

3) Established grasses or legumes - the species listed below are resource conserving crops only when planted in the appropriate season for the crop to grow and produce seed. Crop residue is left standing in the field and is not removed by shredding or mechanical forage harvesting such as cutting for silage or late season haying operations.

Bermudagrass
Bluegrass, Kentucky
Bluestem, big
Bluestem, little
Bluestem, oldworld
Brome, smooth
Canarygrass, reed
Clover, alsike
Clover, ladino
Crabgrass, southern
Dropseed, composite
Fescue, tall
Gamagrass, eastern
Indiangrass
Redtop
Ryegrass, annual
Ryegrass, perennial
Switchgrass
Timothy
Wildrye, Canada
Wildrye, Virginia

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328A, the following documentation requirements apply in Missouri:

  Prior to implementation:

  - Identify the complete rotation that has been followed on each field where this enhancement is planned - _____ _____.

  After implementation:

  - Document the applied resource conserving crop rotation with photography.

United States Department of Agriculture

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: Soil; 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

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

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.

- ☐ 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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328B

Improved Resource Conserving Crop Rotation

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328B, the following additional criteria apply in Missouri:
    - Select crops or perennial cover from the following list to achieve one of the types of resource conserving crop rotations listed on Enhancement E328B, page 2.
        1) Crops grown to maturity – forages listed below are resource conserving crops only when used for seed production:

Barley	Popcorn
Corn, grain	Rice
Corn, sweet	Rye, cereal
Millet, browntop	Sorghum, forage
Millet, foxtail	Sorghum, grain
Millet, Japanese	Sorghum-Sudangrass
Millet, pearl	Sudangrass
Oats	Triticale
Oats, Black	Wheat

        2) Cover crops dominated by any combination of the above listed high residue crops. Cover crops must be established and maintained until late spring or late fall termination according to the Conservation Practice Standard (CPS) Cover Crop (Code 340). Cover crop must achieve 4000 or

more pounds per acre air-dry ground cover produced between planting and termination to be considered high residue cover.

3) Established grasses or legumes - the species listed below are resource conserving crops only when planted in the appropriate season for the crop to grow and produce seed. Crop residue is left standing in the field and is not removed by shredding or mechanical forage harvesting such as cutting for silage or late season haying operations.

Bermudagrass
Bluegrass, Kentucky
Bluestem, big
Bluestem, little
Bluestem, oldworld
Brome, smooth
Canarygrass, reed
Clover, alsike
Clover, ladino
Crabgrass, southern
Dropseed, composite
Fescue, tall
Gamagrass, eastern
Indiangrass
Redtop
Ryegrass, annual
Ryegrass, perennial
Switchgrass
Timothy
Wildrye, Canada
Wildrye, Virginia

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328B, the following documentation requirements apply in Missouri:

  Prior to implementation:

  - Identify the complete rotation that has been followed on each field where this enhancement is planned - _____ _____.

  After implementation:

  - Document the improved resource conserving crop rotation with photography.

United States Department of Agriculture

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 un-harvested 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.*

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.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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.

- ☐ 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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328D

Leave standing grain crops unharvested to benefit wildlife

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328D the following additional criteria apply in Missouri:
    - Each area of unharvested, standing grain crop is to be a minimum of ½ acre and at least 30 feet in width.
    - Unharvested crop must be fenced from livestock when gleaning of the adjacent crop residue will take place.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328D, the following additional documentation requirements apply in Missouri:
    - After implementation, take photos within two weeks of the adjacent crop harvest AND within 2 weeks of unharvested crop termination prior to planting. Photos must indicate field location and date.

United States Department of Agriculture

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).

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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)

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

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328E

Soil health crop rotation

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328E, the following additional criteria apply in Missouri:

  - **High Residue Production Crops** – only when planted using normal agronomic planting methods and planting periods for seed production. Crop residue is left standing in the field and not destroyed by shredding or mechanical forage such as cutting for silage or late-season haying operations:

    Cool Season Grasses:

Barley	Rye, Cereal
Oats	Triticale
Oats, Black	Wheat

    Warm Season Grasses:

Corn, Grain	Popcorn
Corn, Sweet	Rice
Millet, Browntop	Sorghum, Forage
Millet, Foxtail	Sorghum, Grain
Millet, Japanese	Sorghum-Sudangrass
Millet, Pearl	Sudangrass
Millet, Proso	

  - **High Residue Cover Crops** – cover crops dominated by any combination of the high residue crops listed below that are properly established according the Conservation Practice Standard (CPS) Cover Crop (Code 340) with stand maintained as a growing crop for a minimum of 4 months when summer

CONSERVATION STEWARDSHIP PROGRAM

planted and 5 months of growth when late fall planted. Any residues produced will not be removed. Biomass produced must exceed 4000 pounds dry-weight to be a high residue crop.

Cool Season Grasses:

Annual Ryegrass	Rye, Cereal
Barley	Triticale
Oats	Wheat
Oats, Black	

Warm Season Grasses (late spring or summer planted):

Sorghum, Forage
Sorghum-Sudangrass
Millet, Pearl

Cool Season Broadleaves:

Canola/Rapeseed	Mustard
Collards or Kale	Phacelia
Crimson Clover	Safflower
Hairy Vetch	Vetches, All Other

Warm Season Broadleaves (late spring or summer planted):

Sunhemp

- **Missouri guidance to maximize living root systems** (90% of available growing degree days) in local climate and cropping systems (available growing days and period of no growth). A crop or cover crop should be actively growing from:

  Northern Missouri – early March (greenup) to early December (dormancy)

  Southern Missouri – mid-February (greenup) to mid-December (dormancy)

CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328E, the following additional documentation requirements apply in Missouri:
    - Record the crop rotation including tillage operations used to achieve the benefits of this enhancement. Attach a RUSLE2 Profile print report "NRCS Profile with SCI STIR Fuel Use and Crop interval erosion04232015" documenting the Management SCI value and OM subfactor value for each field with a modified crop rotation.

United States Department of Agriculture

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.

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 = _____

- ☐ 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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328F

Modifications to Improve soil health and increase soil organic matter

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328F, the following additional criteria apply in Missouri:

  The crop rotation and/or crop management system will be modified in Year 1 based on the results of the initial soil health assessment to:
  - Add a new crop or cover crop to the rotation;
  - Make changes to planting and/or tillage system;
  - Adjust harvest timings of crops;
  - Modify cover crop mixture to include more high residue crops, and/or
  - Adjust termination timing of cover crops.

  No specific assessment type is required or recommended by NRCS; however, specific sampling protocol provided by the University of Missouri – Columbia will be followed.

  SAMPLING (based on University of Missouri-Columbia guidelines)
  One soil health assessment per each crop field in the CLU layer will be the minimum requirement; select a site that represents the majority of the field. Mark the site with GPS coordinates as the Year 3 assessment will occur on the same relative site.

  Sampling equipment needed includes:
  - leaf rake,
  - bulk density metal sampling ring,
  - wood board,
  - hammer or mallet,
  - shovel or trowel,

CONSERVATION STEWARDSHIP PROGRAM

- small knife or spatula, and
- a gallon ziplock bag per sample.

Remove the surface residue from the selected site. Rake back the residue to provide a soil surface that is bare and large enough for 4 separate ring samples. When sampling between crop rows, an area 4 feet in length should be adequate allowing 4 ring samples about 12 inches apart.

Place the bulk density sampling ring on the surface with the sharp edge on the soil. Use the board and the mallet to push the ring into the soil until the top of the ring is flush with the soil surface. Dig around and under the ring with the shovel to remove the sampling ring and soil intact. Trim off any excess soil to have the sample flush with each end of the ring. This sample should be removed from the ring and put in the ziplock bag – all material in the ring must end up in the bag. Repeat this process 3 more times with all samples collected as a composite sample in the ziplock bag. Label the bag with the producer's name and address, the tract number, the field number or location, and the date.

Sample all fields to collect composite soil samples. Producer will prepare all samples for immediate shipping to a soil health assessment lab.

Repeat sampling in Year 3 using this same protocol on the same site using previously marked GPS coordinates from Year 1.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328F, the following additional documentation requirements apply in Missouri:

  Attach copies of the soil health assessments for each field and the two sample years.

  List changes that were made to the crop rotation based on the soil health assessments in Year 1 and Year 3.

United States Department of Agriculture

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

ENHANCMENT 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.

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.

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)

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.

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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328G

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

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328G the following additional criteria apply in Missouri:
  - Identify the fields and crops to be grown in rotation. The rotation requires a minimum of four (4) different crops and a minimum of three (3) different crop types. High residue crops or cover crops will be required 2 out of three years in this rotation. When feasible, select crops with a living root through the winter dormant period.

    High Residue Production Crops – only when planted using normal agronomic planting methods and planting periods for seed production. Crop residue is left standing in the field and not destroyed by shredding or mechanical forage such as cutting for silage or late-season haying operations:

    Cool Season Grasses:

    Barley
    Oats
    Oats, Black
    Rye, Cereal
    Triticale
    Wheat

    Warm Season Grasses:

    Corn, Grain
    Corn, Sweet
    Millet, Browntop
    Millet, Foxtail
    Millet, Japanese
    Millet, Pearl
    Millet, Proso
    Popcorn
    Rice
    Sorghum, Forage
    Sorghum, Grain
    Sorghum-Sudangrass
    Sudangrass

CONSERVATION STEWARDSHIP PROGRAM

High Residue Cover Crops – cover crops dominated by any combination of the high residue crops listed below that are properly established according the Conservation Practice Standard (CPS) Cover Crop (Code 340) with stand maintained as a growing crop for a minimum of 4 months when summer planted and 5 months of growth when late fall planted. Any residues produced will not be removed. Biomass produced must exceed 4000 pounds dry-weight to be a high residue crop.

Cool Season Grasses:

Annual Ryegrass	Rye, Cereal
Barley	Triticale
Oats	Wheat
Oats, Black	

Warm Season Grasses (late spring or summer planted):

Sorghum, Forage
Sorghum-Sudangrass
Millet, Pearl

Cool Season Broadleaves:

Canola/Rapeseed	Mustard
Collards or Kale	Phacelia
Crimson Clover	Safflower
Hairy Vetch	Vetches, All Other

Warm Season Broadleaves (late spring or summer planted):

Sunhemp

- **Missouri guidance to maximize living root systems** (90% of available growing degree days) in local climate and cropping systems (available growing days and period of no growth). A crop or cover crop should be actively growing from:
  - Northern Missouri – early March (greenup) to early December (dormancy)
  - Southern Missouri – mid-February (greenup) to mid-December (dormancy)

CONSERVATION STEWARDSHIP PROGRAM

- Document the benchmark and the planned crop rotation in RUSLE2 or WEPS runs to show crops, a positive trending SCI, and an increase in living root periods in the rotation.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328G, the following additional documentation requirements apply in Missouri:

  Prior to Implementation, document benchmark conditions and planned crop rotation with RUSLE2 or WEPS runs that documents all of the following:

  - Selected crops and crop sequence (current and planned)
  - A positive trend in the organic matter (OM) subfactor value over the life of the rotation
  - A positive trending soil conditioning index (SCI) for the planned rotation
  - An increase in living root periods in the planned rotation.
  - Soil tillage intensity rating (STIR) values by crop interval. Only one crop-year in the planned rotation will have a STIR value greater than 20.

United States Department of Agriculture

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.***

- 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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328I

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

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328I, the following additional criteria apply in Missouri:
    - 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 one of the following risk assessment tools:
        1) Soil loss for a field exceeds two (2) times the soil loss tolerance (T) level (average annual soil loss in the benchmark system. The soil loss after installation of this enhancement will be equal to or less than the soil tolerance (T) level for each and every field treated.
        2) Missouri soil test analysis showing phosphorus rating of high, very high or excess. Soil test must be a recent analysis within the last 12 months.
        3) Missouri Leaching Index rating soils with an index exceeding 10. The Missouri Leaching Index is located in the Missouri Field Office Technical Guide (FOTG), Section II, Water Resources Information, Water Quality.
        4) Missouri Phosphorus Index showing a rating of high risk or very high risk. The Missouri Phosphorus Index is explained in the FOTG, Section IV,

conservation practice standard Nutrient Management (Code 590) Guidance Document 590-MO-GD-003.

CONSERVATION STEWARDSHIP PROGRAM

Select forage species from the following table:

Forage Species	Seasons of Use	Planting Depth (inches)	Drilled Rate (lbs./ac.)	Broadcast Rate (lbs./ac.)
Annual ryegrass	summer/fall	0.25 – 0.50	15	25
Barley	fall/spring	1.0 - 2.0	75	100
Browntop millet	summer	0.5 – 1.0	25	40
Cereal rye	summer/fall	1.0 - 2.0	90	125
Forage sorghum	summer	0.75 – 1.5	35	50
Foxtail millet	summer	0.5 – 1.0	20	30
Japanese millet	summer	0.5 – 1.0	25	40
Oats	spring	1.0 – 2.0	90	125
Sorghum-sudangrass	summer	0.75 – 1.5	25	40
Triticale	summer/fall	1.0 - 2.0	90	125
Winter wheat	summer/fall	1.0 - 2.0	90	125

- Planting a mixture of the allowed species will provide additional benefits. Adjust the seeding rate based on the percentage of each species in a mixture.
- Harvest operations must remove the forage from the field to achieve desired benefits.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328I, the following additional documentation requirements apply in Missouri:
  - Photo documentation of crops or mixtures grown, planting operations, and harvest operations.

- Attach calculations to document the seeding rate achieved; include seed tags and weight tickets as needed.

CONSERVATION STEWARDSHIP PROGRAM

United States Department of Agriculture

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.***

- 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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328I

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

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328I, the following additional criteria apply in Missouri:
    - 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 one of the following risk assessment tools:
        1) Soil loss for a field exceeds two (2) times the soil loss tolerance (T) level (average annual soil loss in the benchmark system. The soil loss after installation of this enhancement will be equal to or less than the soil tolerance (T) level for each and every field treated.
        2) Missouri soil test analysis showing phosphorus rating of high, very high or excess. Soil test must be a recent analysis within the last 12 months.
        3) Missouri Leaching Index rating soils with an index exceeding 10. The Missouri Leaching Index is located in the Missouri Field Office Technical Guide (FOTG), Section II, Water Resources Information, Water Quality.
        4) Missouri Phosphorus Index showing a rating of high risk or very high risk. The Missouri Phosphorus Index is explained in the FOTG, Section IV,

conservation practice standard Nutrient Management (Code 590) Guidance Document 590-MO-GD-003.

CONSERVATION STEWARDSHIP PROGRAM

Select forage species from the following table:

Forage Species	Seasons of Use	Planting Depth (inches)	Drilled Rate (lbs./ac.)	Broadcast Rate (lbs./ac.)
Annual ryegrass	summer/fall	0.25 – 0.50	15	25
Barley	fall/spring	1.0 - 2.0	75	100
Browntop millet	summer	0.5 – 1.0	25	40
Cereal rye	summer/fall	1.0 - 2.0	90	125
Forage sorghum	summer	0.75 – 1.5	35	50
Foxtail millet	summer	0.5 – 1.0	20	30
Japanese millet	summer	0.5 – 1.0	25	40
Oats	spring	1.0 – 2.0	90	125
Sorghum-sudangrass	summer	0.75 – 1.5	25	40
Triticale	summer/fall	1.0 - 2.0	90	125
Winter wheat	summer/fall	1.0 - 2.0	90	125

- Planting a mixture of the allowed species will provide additional benefits. Adjust the seeding rate based on the percentage of each species in a mixture.
- Harvest operations must remove the forage from the field to achieve desired benefits.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328I, the following additional documentation requirements apply in Missouri:
  - Photo documentation of crops or mixtures grown, planting operations, and harvest operations.

- Attach calculations to document the seeding rate achieved; include seed tags and weight tickets as needed.

CONSERVATION STEWARDSHIP PROGRAM

United States Department of Agriculture

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>**

- 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

- ☐ 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.

- ☐ 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E328J

Improved crop rotation to provide benefits to pollinators

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328J, the following additional criteria apply in Missouri:

  One or more of the pollinator friendly crops will be planted on 5 percent of the contracted cropland acreage annually and will be allowed to bloom before harvest or termination of a cover crop. Select pollinator friendly crops from the following list:

Alfalfa	Common vetch	Alsike clover
Red clover	Crimson clover	Eggplant
White clover	Sunflower	Lentil
Buckwheat	Cowpea	Pumpkin
Green bean	Flax	Squash
Watermelon	Cantaloupe	Cucumber
Turnip	Green pepper	Safflower
Broccoli	Cauliflower	Brussel sprouts
Beet	Mustard	Canola
Tomato	Onion	Celery
Potato	Okra	Zucchini

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328J, the following additional documentation requirements apply in Missouri:

  After implementation:

CONSERVATION STEWARDSHIP PROGRAM

- Participant will take photos to document crop establishment and during the bloom period for each pollinator crop grown to verify implementation.
- Document the planting of a minimum of 5 percent of the cropland acreage.

United States Department of Agriculture

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.

- 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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E328K

Multiple crop types to benefit wildlife

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E328K, the following additional criteria apply in Missouri:

  Select wildlife freindly crops to add to the rotation from the following list:

  Perennial or Biennial Species:

Alfalfa	Clover, white
Clover, alsike	Sweetclover
Clover, Kura	Clover, Red

  Annual Species:

Barley	Ryegrass, annual
Oats	Triticale
Oats, black	Wheat
Rye, cereal	Corn, grain
Corn, sweet	Millet, browntop
Millet, foxtail	Millet, Japanese
Millet, pearl	Popcorn
Rice	Sorghum, forage
Sorghum, grain	Sorghum-sudangrass
Sudangrass	Bean
Beet	Broccoli
Cabbage	Canola
Carrot	Cauliflower
Clover, Crimson	Collards and Kale
Flax	Lentil
Mustard	Pea, field or Austrian winter

Phacelia	Radish
Sugarbeet	Turnip
Vetch, chickling	Vetch, common
Vetch, woollypod	Bean, mung
Buckwheat	Chickpea
Clover, Japanese	Clover, Korean
Cowpea	Cucumber
Melons	Peanut
Peppers	Pumpkin
Safflower	Soybean
Squash	Sunflower

- Crops strips will be a minimum of 0.5 acres in size not to exceed 40 acres. Alternating crop strips will be a minimum of 30 feet up to a maximum of 120 feet in width.

- Harvest crop residue will remain standing and undisturbed over winter until it is time to prepare the soil for planting the next crop. For crops requiring an early spring harvest, the crop residue will remain standing in the wildlife-friendly crop strips until July 15. Grazing and tillage operations will result in at least 60 percent ground cover remaining.

- Select crop species to provide food or shelter for the desired species of wildlife. The crop species must be adapted to the site conditions and planted at the appropriate time for a successful crop. Follow University of Missouri – Columbia Extension guidance on planting, maintenance, and harvesting of the crops new to the rotation.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E328K, the following additional documentation requirements apply in Missouri:

  After implementation:

  - Participant will take photos of the crop strips while vegetation is growing for review by NRCS to verify implementation meets the enhancement.

- Participant will record field by field data of planting dates and planting rates, stand maintenance activities, and harvest activities for all strips in the field. A copy of producer records will be provided to NRCS.

CONSERVATION STEWARDSHIP PROGRAM

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E338A

CONSERVATION STEWARDSHIP PROGRAM

Strategically planned, patch burning for grazing distribution and wildlife habitat

Conservation Practice 338: Prescribed Burning

APPLICABLE LAND USE: Forest,Pasture,and Range

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Patch burn grazing is the application of prescribed fires on portions of an identified grazing unit at different times of the year. Patch burn grazing allows grazing animals to select where they want to graze creating a mosaic of vegetation structures and diversity that will maintain or enhance the wildlife habitat desired for the identified wildlife species and maintain livestock production.

Criteria

Each burn event will cover 10% to 50% of any grazing unit's acreage. Subsequent individual burn events will occur during different seasons (as defined by the state NRCS office), whether conducted during the same year or a subsequent year as the prior burn event.

The following examples are to be used for illustration purposes only:

- Grazing unit A is burned in March. Another part of grazing unit A is burned in August of the same year.
- Grazing unit A is burned in March. Grazing unit B is burned in August two years later.
- Grazing unit A is burned in March. Grazing unit C is burned in August of the same year.

- At least two burn applications will be applied during the contract period.

- Annual application by burning different patches each year or different patches in different seasons in one year is acceptable and desirable for many wildlife species.
- Prescribed burning 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).
- Conduct treatments during periods of the year that accommodate reproduction and other life-cycle requirements of target wildlife and pollinator species.
- Evaluate wildlife habitat with the state NRCS Wildlife Habitat Evaluation Guide (WHEG) and manage for a WHEG value of 0.75 or greater.
- A written prescribed burn plan for each burn that meets or exceeds NRCS Conservation Practice Standard Prescribe Burning (Code 338) criteria.

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 and clearly identify the wildlife species of concern for the area that includes a Wildlife Habitat Evaluation Guide.
- ☐ Prior to implementation, obtain a written prescribed burn plan with map delineating the areas that will be burned, burn prescription, timing of burn, and method of burn.
- ☐ During implementation, keep grazing/herd in/out records,
- ☐ During implementation, keep prescribed burn documentation such as date, weather conditions, etc.
- ☐ After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
  - o Written grazing plan, including Wildlife Habitat Evaluation Guide with before and after evaluation values.
  - o Grazing /herd in/out records
  - o Prescribed burn plan with documentation of conditions during implementation.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Burning (Code 338) as it relates to implementing this enhancement.
- ☐ As needed, provide technical additional assistance to the participant as requested.
- ☐ After implementation, complete forage utilization jobsheet for NRCS Conservation Practice Standard Prescribed Grazing (Code 528).
- ☐ After implementation, verify implementation of the written grazing plan, by reviewing plan and grazing/herd in/out records kept during enhancement implementation.

☐ After implementation, verify the completed and certified Wildlife Habitat Evaluation Guide (WHEG) has a total score after implementation of equal or greater than 0.75.
WHEG score after = _____

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E338A

Strategically planned, patch burning for grazing distribution and wildlife habitat

Conservation Practice 338: Prescribed Burning

Additional Criteria for Missouri

- Not applicable on Forest land for grazing purposes in Missouri

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E338A

CONSERVATION STEWARDSHIP PROGRAM

Strategically planned, patch burning for grazing distribution and wildlife habitat

Conservation Practice 338: Prescribed Burning

APPLICABLE LAND USE: Forest,Pasture,and Range

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Patch burn grazing is the application of prescribed fires on portions of an identified grazing unit at different times of the year. Patch burn grazing allows grazing animals to select where they want to graze creating a mosaic of vegetation structures and diversity that will maintain or enhance the wildlife habitat desired for the identified wildlife species and maintain livestock production.

Criteria

Each burn event will cover 10% to 50% of any grazing unit's acreage. Subsequent individual burn events will occur during different seasons (as defined by the state NRCS office), whether conducted during the same year or a subsequent year as the prior burn event.

The following examples are to be used for illustration purposes only:

- Grazing unit A is burned in March. Another part of grazing unit A is burned in August of the same year.
- Grazing unit A is burned in March. Grazing unit B is burned in August two years later.
- Grazing unit A is burned in March. Grazing unit C is burned in August of the same year.

- At least two burn applications will be applied during the contract period.

- Annual application by burning different patches each year or different patches in different seasons in one year is acceptable and desirable for many wildlife species.
- Prescribed burning 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).
- Conduct treatments during periods of the year that accommodate reproduction and other life-cycle requirements of target wildlife and pollinator species.
- Evaluate wildlife habitat with the state NRCS Wildlife Habitat Evaluation Guide (WHEG) and manage for a WHEG value of 0.75 or greater.
- A written prescribed burn plan for each burn that meets or exceeds NRCS Conservation Practice Standard Prescribe Burning (Code 338) criteria.

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 and clearly identify the wildlife species of concern for the area that includes a Wildlife Habitat Evaluation Guide.
- ☐ Prior to implementation, obtain a written prescribed burn plan with map delineating the areas that will be burned, burn prescription, timing of burn, and method of burn.
- ☐ During implementation, keep grazing/herd in/out records,
- ☐ During implementation, keep prescribed burn documentation such as date, weather conditions, etc.
- ☐ After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
  - o Written grazing plan, including Wildlife Habitat Evaluation Guide with before and after evaluation values.
  - o Grazing /herd in/out records
  - o Prescribed burn plan with documentation of conditions during implementation.

NRCS will:

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Burning (Code 338) as it relates to implementing this enhancement.
- ☐ As needed, provide technical additional assistance to the participant as requested.
- ☐ After implementation, complete forage utilization jobsheet for NRCS Conservation Practice Standard Prescribed Grazing (Code 528).
- ☐ After implementation, verify implementation of the written grazing plan, by reviewing plan and grazing/herd in/out records kept during enhancement implementation.

☐ After implementation, verify the completed and certified Wildlife Habitat Evaluation Guide (WHEG) has a total score after implementation of equal or greater than 0.75.
WHEG score after = _____

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E338A

Strategically planned, patch burning for grazing distribution and wildlife habitat

Conservation Practice 338: Prescribed Burning

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E338A the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - A written burn plan will be prepared and approved by certified individuals prior to implementation. All patch burns will follow Conservation Practice Standard Prescribed Burning (Code 338). Specifications for applying this practice will be prepared for each site and recorded using JS-Agron 18 or similar prescribed burn planning document. All necessary permits must be obtained before implementation of the practice.
    - Prior to and after implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), Prairie and Grassland Community Model, in the FOTG. Minimum score after implementation is to be 0.75 or greater.

      Target Species: _____

      WHEG score before implementation: _____
      WHEG score after implementation: _____

CONSERVATION STEWARDSHIP PROGRAM

- For additional information on patch burn grazing reference the guidance document Patch Burn Grazing (IS-MO528A) in Section IV of the FOTG under CPS Prescribed Grazing (Code 528).

- End grazing when forage height in the unburned portion of the unit reaches an average of 6 to 8 inches for cool-season grasses and 10 to 12 inches for native warm-season grasses.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E338A the following additional documentation requirements apply in Missouri:

  - Annually submit to the NRCS field office a field log including:
    - Livestock herd management records that include the entry and exit dates for grazing of each pasture/paddock.
    - Records, including pictures, showing the beginning and ending heights of the forage in the unburned area for pasture/paddock.

  - Completed and signed post burn evaluation, with photos of the burn area.

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

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 Plan 112), or other Prescribed Burn prescription, in consultation with NRCS personnel to address restoration needs for fire-adapted vegetative communities and forages on the property.

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

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

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)
    - o 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.)

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

CONSERVATION STEWARDSHIP PROGRAM

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:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E338B

Short-interval burns to promote a healthy herbaceous plant community

Conservation Practice 338: Prescribed Burning

Additional Criteria for Missouri

- Conservation practice code 338, Fuel Break is not used in Missouri. NRCS will use other applicable conservation practices to provide the required information for application of this enhancement activity.
- Prior to implementation, acquire a written burn plan that has been approved by a qualified burn planner. The burn plan must meet enhancement criteria and all criteria included in Prescribed Burn Plan Job Sheet (JS-Agron-18).
- If grazing animals are used on forest land to manipulate vegetation prior to burn, they will be stocked at levels necessary to manipulate the target vegetation according to the Prescribed Grazing Plan. Grazing animals will be removed from forest sites once target vegetation manipulation is achieved.

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

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 Plan 112), or other Prescribed Burn prescription, in consultation with NRCS personnel to address restoration needs for fire-adapted vegetative communities and forages on the property.

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

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

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)
    - o 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.)

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

CONSERVATION STEWARDSHIP PROGRAM

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:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E338B

Short-interval burns to promote a healthy herbaceous plant community

Conservation Practice 338: Prescribed Burning

Additional Criteria for Missouri

- Conservation practice code 338, Fuel Break is not used in Missouri. NRCS will use other applicable conservation practices to provide the required information for application of this enhancement activity.
- Prior to implementation, acquire a written burn plan that has been approved by a qualified burn planner. The burn plan must meet enhancement criteria and all criteria included in Prescribed Burn Plan Job Sheet (JS-Agron-18).
- If grazing animals are used on forest land to manipulate vegetation prior to burn, they will be stocked at levels necessary to manipulate the target vegetation according to the Prescribed Grazing Plan. Grazing animals will be removed from forest sites once target vegetation manipulation is achieved.
- Use appropriate Ecological Site Description to determine native community for restoration.
- Management practices and activities shall not disturb cover during the primary nesting period in Missouri (May 1 – July 15).
- Prevent or control the spread of invasive plants, if present.
- Participant will submit to NRCS field office a completed Post-Burn evaluation (part of the NRCS Prescribed Burn Plan -- JSAgron18).

United States Department of Agriculture

Conservation Enhancement Activity

E338C

CONSERVATION STEWARDSHIP PROGRAM

Sequential patch burning

Conservation Practice 338: Prescribed Burning

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Conduct prescribed burning beneath a forest canopy (ground fire), burning a portion of the area each year to create a mosaic of vegetation in several stages of development to provide a more diverse understory and contribute to wildlife habitat. The health of conifer and oak-conifer forests, particularly longleaf pine with a characteristic herbaceous understory, is dependent on fire or another means of controlling encroaching woody vegetation. A healthy longleaf or shortleaf pine, or pine-oak forest, can support a wide array of wildlife including pollinators and several endangered or threatened species.

Criteria

- States will apply the general criteria from the NRCS National Conservation Practice Standard Prescribed Burning (Code 338) as listed below, and additional criteria as required by the NRCS State Office.
- Apply to conifer forests of species that are adapted to frequent low-intensity ground fires, where undesirable understory vegetation has encroached.
- Selected areas of the enrolled land use acres will be underburned annually for a minimum of three consecutive years to create a mosaic of vegetation in different stages of development.
- Re-burning of already-burned areas during the cumulative year period is prohibited.

- Over the cumulative year period (three or more years) all acres will be underburned.
- Prior to the burn, assess the existing fuel load. Determine the need for pre-treatment of vegetation and fuels, and for application of complementary NRCS Conservation Practice Standards such as Fuel Break (Code 383), Firebreak (Code 394), and Woody Residue Treatment (Code 384).
- If invasive plants are present, 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:
    - Objectives of the burn and expected post-burn conditions.
    - Maps, images and/or descriptions of the proposed burn area and any associated or adjacent smoke sensitive areas.
    - Inventory of available fuels.
    - Required weather and fuel conditions under which the burn will be conducted.
    - Firing sequence and methods.
    - List of equipment and personnel needed and job assignments.
    - Any pre-burn preparation needed to safely and effectively conduct the burn
    - List of appropriate authorities, agencies, departments, individuals, and facilities to be contacted and necessary signatures of approval.
    - Checklist for a post-burn evaluation.
- 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, identify and document sites dominated by conifer forests adapted to low-intensity ground fires that when properly applied will improve understory diversity for wildlife habitat and control undesirable encroaching vegetation. (NRCS will provide technical assistance, as needed)
- ☐ Prior to implementation, differentiate the enrolled acres into no fewer than 3 units, one to be burned each year, to create a mosaic of vegetation in different stages of development.
- ☐ Prior to implementation, assess the existing fuel load and determine the need for pre-treatment of the vegetation and fuels to facilitate a low-intensity ground fire. As needed, apply complimentary conservation practices 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 review and written approval.
- ☐ Prior to implementation of a prescribed burn, acquire all necessary approvals and permits (i.e. 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 the 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.)
- ☐ After implementation of each prescribed burn, conduct a post-burn evaluation as required within the burn plan and provide evaluation documentation to NRCS.

NRCS will:

- ☐ Prior to implementation and as needed, provide technical assistance in determining sites for enhancement implementation that meet specified criteria.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation and as needed, provide explanation and technical assistance to the following NRCS Conservation Practice Standards as they relate to implementing this enhancement:
  - o Prescribed Burning (Code 338)
  - o Fuel Break (Code 383)
  - o Firebreak (Code 394)
  - o Woody Residue Treatment (Code 384)
  - o 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.
- ☐ 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 encountered issues, and as needed, provide assistance for changes in planning and procedure for the remaining 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.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E338C

Sequential patch burning

Conservation Practice 338: Prescribed Burning

Additional Criteria for Missouri

- Conservation practice code 338, Fuel Break is not used in Missouri. NRCS will use other applicable conservation practices to provide the required information for application of this enhancement activity.
- This enhancement is only applicable on ESDs that include shortleaf pine in the species list.
- Prior to implementation, acquire a written burn plan that has been approved by a qualified burn planner. The burn plan must meet enhancement criteria and all criteria included in Prescribed Burn Plan Job Sheet (JS-Agron-18).

United States Department of Agriculture

Conservation Enhancement Activity

E338C

CONSERVATION STEWARDSHIP PROGRAM

Sequential patch burning

Conservation Practice 338: Prescribed Burning

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Conduct prescribed burning beneath a forest canopy (ground fire), burning a portion of the area each year to create a mosaic of vegetation in several stages of development to provide a more diverse understory and contribute to wildlife habitat. The health of conifer and oak-conifer forests, particularly longleaf pine with a characteristic herbaceous understory, is dependent on fire or another means of controlling encroaching woody vegetation. A healthy longleaf or shortleaf pine, or pine-oak forest, can support a wide array of wildlife including pollinators and several endangered or threatened species.

Criteria

- States will apply the general criteria from the NRCS National Conservation Practice Standard Prescribed Burning (Code 338) as listed below, and additional criteria as required by the NRCS State Office.
- Apply to conifer forests of species that are adapted to frequent low-intensity ground fires, where undesirable understory vegetation has encroached.
- Selected areas of the enrolled land use acres will be underburned annually for a minimum of three consecutive years to create a mosaic of vegetation in different stages of development.
- Re-burning of already-burned areas during the cumulative year period is prohibited.

- Over the cumulative year period (three or more years) all acres will be underburned.
- Prior to the burn, assess the existing fuel load. Determine the need for pre-treatment of vegetation and fuels, and for application of complementary NRCS Conservation Practice Standards such as Fuel Break (Code 383), Firebreak (Code 394), and Woody Residue Treatment (Code 384).
- If invasive plants are present, 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:
    - Objectives of the burn and expected post-burn conditions.
    - Maps, images and/or descriptions of the proposed burn area and any associated or adjacent smoke sensitive areas.
    - Inventory of available fuels.
    - Required weather and fuel conditions under which the burn will be conducted.
    - Firing sequence and methods.
    - List of equipment and personnel needed and job assignments.
    - Any pre-burn preparation needed to safely and effectively conduct the burn
    - List of appropriate authorities, agencies, departments, individuals, and facilities to be contacted and necessary signatures of approval.
    - Checklist for a post-burn evaluation.
- 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ Prior to implementation, identify and document sites dominated by conifer forests adapted to low-intensity ground fires that when properly applied will improve understory diversity for wildlife habitat and control undesirable encroaching vegetation. (NRCS will provide technical assistance, as needed)
- ☐ Prior to implementation, differentiate the enrolled acres into no fewer than 3 units, one to be burned each year, to create a mosaic of vegetation in different stages of development.
- ☐ Prior to implementation, assess the existing fuel load and determine the need for pre-treatment of the vegetation and fuels to facilitate a low-intensity ground fire. As needed, apply complimentary conservation practices 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 review and written approval.
- ☐ Prior to implementation of a prescribed burn, acquire all necessary approvals and permits (i.e. 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 the 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.)
- ☐ After implementation of each prescribed burn, conduct a post-burn evaluation as required within the burn plan and provide evaluation documentation to NRCS.

NRCS will:

- ☐ Prior to implementation and as needed, provide technical assistance in determining sites for enhancement implementation that meet specified criteria.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ Prior to implementation and as needed, provide explanation and technical assistance to the following NRCS Conservation Practice Standards as they relate to implementing this enhancement:
  - o Prescribed Burning (Code 338)
  - o Fuel Break (Code 383)
  - o Firebreak (Code 394)
  - o Woody Residue Treatment (Code 384)
  - o 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.
- ☐ 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 encountered issues, and as needed, provide assistance for changes in planning and procedure for the remaining 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.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E338C

Sequential patch burning

Conservation Practice 338: Prescribed Burning

Additional Criteria for Missouri

- Conservation practice code 338, Fuel Break is not used in Missouri. NRCS will use other applicable conservation practices to provide the required information for application of this enhancement activity.
- This enhancement is only applicable on ESDs that include shortleaf pine in the species list.
- Prior to implementation, acquire a written burn plan that has been approved by a qualified burn planner. The burn plan must meet enhancement criteria and all criteria included in Prescribed Burn Plan Job Sheet (JS-Agron-18).
- Management practices and activities shall not disturb cover during the primary nesting period in Missouri (May 1 – July 15).
- Prevent or control the spread of invasive plants, if present.
- Participant will submit to NRCS field office a completed Post-Burn evaluation (part of the NRCS Prescribed Burn Plan -- JSAgron18).

United States Department of Agriculture

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

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.

- ☐ 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:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E340A

Cover crop to reduce soil erosion

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340A, the following additional criteria apply in Missouri:
    - For state specific cover crop lists, refer to plant information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340).

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E340A, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

    - Use the Missouri NRCS Cover Crop Implementation Requirement (Code 340) to plan cover crops for this enhancement. The producer and NRCS planner will complete:
        - the form heading with location information.
        - the producer's objectives for applying a cover crop.
        - seeding method.
        - benchmark soil loss (existing) and planned soil loss (with cover crop)
            - include soil condition Index (SCI) for each condition.
        - planned termination method.
        - the planned cover crop mixture, seeding rates, and seeding depth.

CONSERVATION STEWARDSHIP PROGRAM

After implementation:

- NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
  - the heading with location information
  - actual species seeded, seed applied, site prepration, fertilizer applied, date of seeding, seeding depth, termination method, and termination date.

- Attach seed tags and fertilizer weight tickets to the completed Implementation Requirement form to support the completion of this practice supplement.

- If any variation to planned cover crop or crop rotation occurred, attach RUSLE2 or WEPS runs, including the SCI for each condition, to document the applied rotation met the enhancement criteria.

United States Department of Agriculture

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.

- 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.

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

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 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 = _____

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

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

Participant Name: _____ Contract Number: _____

Total Acres Applied: _____ Fiscal Year Completed: _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E340B

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

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340B, the following additional criteria apply in Missouri:
    - For state specific cover crop lists, refer to plant information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340).
    - For state guidance on local climate and cropping systems, refer to the ”Cover Crop Seeding Dates by Zone” information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340). Mixtures of 3 or more compatible species are required.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E340B, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

    - The Missouri NRCS Cover Crop Implementation Requirement (Code 340) will be used to plan cover crops for this purpose. The producer and NRCS planner will complete:
        - the form heading with location information.
        - the producer’s objectives for applying a cover crop.
        - seeding method.
        - benchmark soil loss (existing) and planned soil loss (after cover crop)

CONSERVATION STEWARDSHIP PROGRAM

  - include SCI and OM subfactor for each condition.
- planned termination method.
- the planned cover crop mixture, seeding rates, and seeding depth.

After implementation:

- NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
  - the heading with location information.
  - actual species seeded, seed applied, site prepration, fertilizer applied, date of seeding, seeding depth, termination method, and termination date.

- Attach seed tags and fertilizer weight tickets to the completed Implementation Requirement form to support the completion of this practice supplement.

- Attach RUSLE2 and WEPS runs to the completed Implementation Requirement form to show the management soil conditioning index (SCI) for the rotation is zero or higher and the Organic Matter (OM) subfactor value is a positive trend over the life of the rotation.

United States Department of Agriculture

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)

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.

- 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

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.

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

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	

- ☐ 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

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, <u>if livestock are included in the system</u> 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, <u>if livestock are included in the system</u> review grazing plan and forage utilization records to verify additional criteria of the enhancement were met.

<u>NRCS Documentation Review:</u>

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340C

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

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340C, the following additional criteria apply in Missouri:
    - For state specific cover crop lists and crop types (cool season grasses, cool season broadleaves, warm season grasses, warm season broadleaves), refer to the ”Plant Information” worksheet of the Cover Crop Implementation Requirements. Note that cool season legumes and warm season legumes are listed separately, but legumes are broadleaves for planning cover crop mixtures. Mixtures of at least 4 compatible species, with at least 2 of the 4 species being from one or more crop types needed to fill in missing crop types in the crop rotation, are required.
    - For state guidance on local climate and cropping systems, refer to the ”Cover Crop Seeding Dates by Zone” information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340).

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E340C, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

CONSERVATION STEWARDSHIP PROGRAM

- The Missouri NRCS Cover Crop Implementation Requirement (Code 340) will be used to plan cover crops for this purpose. The producer and NRCS planner will complete:
  - the form heading with location information.
  - the producer's objectives for applying a cover crop.
  - seeding method.
  - benchmark soil loss (existing) and planned soil loss (after cover crop)
    - include soil condition Index for each condition.
  - planned termination method.
  - the planned cover crop mixture, seeding rates, and seeding depth.
  - seed size – show number of seeds per pound of seed.

After implementation:

- NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
  - the heading with location information.
  - actual species seeded,
  - seed applied,
  - site prepration,
  - fertilizer applied,
  - date of seeding,
  - seeding depth, and
  - termination method and date.

- Attach seed tags and fertilizer weight tickets to the completed Implementation Requirement form to support the completion of this practice supplement.

- Attach RUSLE2 and WEPS runs to the completed Implementation Requirement form to show the management soil conditioning index (SCI) for the rotation is zero or higher and the Organic Matter (OM) subfactor value is a positive trend over the life of the rotation.

United States Department of Agriculture

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

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 = _____

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E340D

Intensive orchard/vineyard floor cover cropping to increase soil health

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340D, the following additional criteria apply in Missouri:
    - For state specific cover crop lists, refer to plant information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340). Cover crops are replanted annually.
    - For state guidance on local climate and cropping systems, refer to the "Cover Crop Seeding Dates by Zone" information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340). Mixtures of 2 or more compatible species are required covering 60 percent or more of the orchard or vineyard ground. Select cover crop species based on producing higher volumes of organic material and root mass. The cover crops need to maintain or increase soil organic matter.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E340D, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

    - The Missouri NRCS Cover Crop Implementation Requirement (Code 340) will be used to plan cover crops for this purpose. The producer and NRCS planner will complete:

- the form heading with location information.
- the producer's objectives for applying a cover crop.
- seeding method.
- benchmark soil loss (existing) and planned soil loss (after cover crop)
  - include SCI and OM subfactor for each condition.
- planned termination method.
- the planned cover crop mixture, seeding rates, and seeding depth.
- seed size – show number of seeds per pound of seed.

During Implementation, the Participant will:

- Take photographs of the cover crop to document covering 60 percent or more of the orchard or vineyard ground. Photographs must include the date and location.

After implementation:

- NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
  - the heading with location information.
  - actual species seeded,
  - seed applied,
  - site prepration,
  - fertilizer applied,
  - date of seeding,
  - seeding depth, and
  - termination method and date.

- Attach seed tags, fertilizer weight tickets, and photographs to the completed Implementation Requirement form to support the completion of this practice supplement.

- If any variation to the planned evaluation, attach the recalculated RUSLE2 or WEPS runs to the completed Implementation Requirement form to show the applied management SCI for the rotation is zero or higher and the OM subfactor value is a positive trend over the life of the rotation

- compare the benchmark system with the system now including cover crops to document the positive changes from additional organic matter.

CONSERVATION STEWARDSHIP PROGRAM

United States Department of Agriculture

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)

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.

- 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.

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.

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

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.

- ☐ 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 = _____

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340E

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

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340E, the following additional criteria apply in Missouri:

  For state specific cover crop lists, refer to plant information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340).

  For state guidance on local climate and cropping systems, refer to the ”Cover Crop Seeding Dates by Zone” information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340). Mixtures of 4 or more compatible species are required and the mixture must provide soil coverage during all non-crop production periods to the maximum extent possible. Attempt to select species and planting dates that will not compete with the production crop yield or harvest.

  The crop rotation and/or crop management system will be modified in Year 1 based on the results of the initial soil health assessment to:

  - add a cover crop to the rotation,
  - make changes to planting and/or tillage system,
  - adjust harvest timing of crops,
  - modify cover crop mixture to include more high residue crops, and/or
  - adjust termination timing of cover crops.

  The modified crop rotation will be sampled again in Year 3 to determine any increased soil organic matter by field. The modified system must achieve a management SCI of zero or higher and result in a positive trend in the OM subfactor value over the life of the rotation.

CONSERVATION STEWARDSHIP PROGRAM

The soil health assessment must account for soil organic matter and provide the grower with information based on their soil health objectives. No specific assessment type is required or recommended by NRCS; however, specific sampling protocol by the University of Missouri-Columbia will be required.

SAMPLING (based on the University of Missouri-Columbia guidelines)
One soil health assessment per crop field in the CLU layer will be the minimum requirement; select a site that represents the majority of the field. Mark the site with GPS coordinates as the Year 3 assessment will occur on the same site.

Sampling equipment needed includes:

- leaf rake,
- bulk density metal sampling ring,
- wood board,
- hammer or mallet,
- shovel or trowel,
- small knife or spatula, and
- a gallon ziplock bag per sample.

Remove the surface residue from the selected site. Rake back the residue to provide a soil surface that is bare and large enough for 4 separate ring samples. When sampling between crop rows, an area 4 feet in length should be adequate allowing 4 ring samples about 12 inches apart.

Place the bulk density sampling ring on the surface with the sharp edge on the soil. Use the board and the mallet to push the ring into the soil until the top of the ring is flush with the soil surface. Dig around and under the ring with the shovel to remove the sampling ring and soil intact. Trim off any excess soil to have the sample flush with each end of the ring. This sample should be removed from the ring and put in the ziplock bag – all material in the ring must end up in the bag. Repeat this process 3 more times with all samples collected as a composite sample in the ziplock bag. Label the bag with the grower's name and address, the tract number, the field number or location, and the date.

Sample all fields to collect composite soil samples. Producer will prepare all samples for immediate shipping to a soil health assessment lab.

Repeat sampling in Year 3 using this same protocol and on the same site using previously marked GPS coordinates from Year 1.

CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E340E, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

  - The Missouri NRCS Cover Crop Implementation Requirement (Code 340) and Year 1 Soil Assessment information will be used to plan cover crops for this purpose. The producer and NRCS planner will complete:
    - the form heading with location information.
    - the producer's objectives for applying a cover crop.
    - seeding method.
    - benchmark soil loss (existing) and planned soil loss (after cover crop)
      - include SCI and OM subfactor for each condition.
    - planned termination method.
    - the planned cover crop mixture, seeding rates, and seeding depth.
    - seed size – show number of seeds per pound of seed.

  After implementation:

  - Attach copies of the soil health assessments for Year 1 and Year 3 for each field.

  - List changes that were made to the crop roation based on the soil health assessment in Year 1 and Year 3.

  - NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
    - the heading with location information.
    - actual species seeded,
    - seed applied,
    - site prepration,
    - fertilizer applied,

- date of seeding,
- seeding depth, and
- termination method and date.

CONSERVATION STEWARDSHIP PROGRAM

- Attach seed tags and fertilizer weight tickets to the completed Implementation Requirement form to support the completion of this practice supplement.

- Attach RUSLE2 and WEPS runs to the completed Implementation Requirement form to show the applied management SCI for the rotation is zero or higher and the OM subfactor value is a positive trend over the life of the rotation.
  - If variations in the planned rotation occurred after the Year 3 assessment, attached the RUSLE2 or WEPS runs documenting the applied management SCI for the rotation is zero or higher and the OM subfactor value is a positive trend over the life of the rotation.

United States Department of Agriculture

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.

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)

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.

☐ 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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340F

Cover crop to minimize soil compaction

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340F, the following additional criteria apply in Missouri:

  Mixtures of 2 or more compatible species are required to include at least 1 fibrous and 1 deep rooted species. Select species that have fibrous or deep rooted systems from the following lists:

  Species with a fibrous root system:

Annual Ryegrass	Wheat
Barley	Triticale
Oat	Forage Sorghum
Black Oat	Sorghum-sudangrass
Cereal Rye	Pearl Millet

  Species with a deep rooted system:

Canola	Sunflower	White Clover
Radish	Sainfoin	Austrian Winter Pea
Turnip	Lentil	Chickpea
Collards or Kale	Hairy Vetch	Mung Bean
Mustard	Woollypod Vetch	Soybean
Flax	Common Vetch	Alfalfa
Phacelia	Red Clover	Cowpea
Buckwheat	Crimson Clover	Sunhemp
Safflower		

Additional Documentation Requirements for Missouri

CONSERVATION STEWARDSHIP PROGRAM

- In additon to the documentation requirements specified in the National Enhancement E340F, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

  - The Missouri NRCS Cover Crop Implementation Requirement (Code 340) will be used to plan cover crops for this purpose. The producer and NRCS planner will complete:
    - the form heading with location information.
    - the producer's objectives for applying a cover crop.
    - seeding method.
    - benchmark soil loss (existing) and planned soil loss (after cover crop)
      - include soil condition Index for each condition.
    - planned termination method.
    - the planned cover crop mixture, seeding rates, and seeding depth.
    - seed size – show number of seeds per pound of seed.

  After implementation:

  - NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
    - the heading with location information.
    - actual species seeded,
    - seed applied,
    - site prepration,
    - fertilizer applied,
    - date of seeding,
    - seeding depth, and
    - termination method and date.

  - Attach seed tags and fertilizer weight tickets to the completed Implementation Requirement form with documentation to support the completion of this practice supplement.

United States Department of Agriculture

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.

- 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.

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.

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.

☐ 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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340G

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

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340G, the following additional criteria apply in Missouri:

  For state specific cover crop lists, refer to plant information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340). Cover crop mixture must contain 2 more compatible species.

  Establish cover crops that are adapted to the site conditions and plan on a late termination date to achieve the desired benefit. Select species from the following list:

Grass Species		
Annual ryegrass	Pearl millet	Sudangrass
Barley	Cereal rye	Wheat
Oat	Forage sorghum	Triticale
Black oat	Sorghum-sudangrass	

Broadleaf Species	
Canola/rapeseed	Mustards
Collards/Kale	Phacelia
Flax	Radish

Additional Documentation Requirements for Missouri

CONSERVATION STEWARDSHIP PROGRAM

- In additon to the documentation requirements specified in the National Enhancement E340G, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

  - The Missouri NRCS Cover Crop Implementation Requirement (Code 340) will be used to plan cover crops for this purpose. The producer and NRCS planner will complete:
    - the form heading with location information.
    - the producer's objectives for applying a cover crop.
    - seeding method.
    - benchmark soil loss (existing) and planned soil loss (after cover crop)
      - include soil condition index for each condition.
    - planned termination method and date of termination.
    - the planned cover crop mixture, seeding rates, and seeding depth.
    - seed size – show number of seeds per pound of seed.

  After implementation:

  - NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
    - the heading with location information.
    - actual species seeded,
    - seed applied,
    - site prepration,
    - fertilizer applied,
    - date of seeding,
    - seeding depth, and
    - termination method and date.

  - Attach seed tags and fertilizer weight tickets to the completed Implementation Requirement form to support the completion of this practice supplement.

United States Department of Agriculture

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.

- 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.

- ☐ 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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340H

Cover crop to suppress excessive weed pressures and break pest cycles

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340H, the following additional criteria apply in Missouri:

  For state specific cover crop lists, refer to plant information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340). Mixtures of 2 or more compatible species are required.

  Select cover crop species for their life cycles, growth habits, and other biological, chemical, and/or physical characteristices. Select cover crop species that do not harbor pests or diseases of subsequent crops in the rotation. Select species from the following lists and associated benefits:

  Species that suppress or compete with weeds:

Annual Ryegrass	Turnip	Chickling Vetch
Barley	Collards or Kale	Vetches, All Other
Oats	Mustard	Crimson Clover
Black Oats	Flax	Red Clover
Cereal Rye	Phacelia	White Clover
Wheat	Buckwheat	Winter Pea, Austrian
Triticale	Safflower	Alfalfa
Forage Sorghum	Sunflower	Chickpea
Sorghum-sudangrass	Sainfoin	Cowpea
Pearl Millet	Lentil	Mung Bean
Canola/Rapeseed	Hairy Vetch	Sunnhemp
Radish	Woollypod Vetch	Soybean

Species that break pest cycles or supress plant pest pressure of pathogens:

Annual Ryegrass	Crimson Clover
Barley	Canola/Rapeseed
Oats	Radish
Black Oats	Turnip
Cereal Rye	Collards or Kale
Triticale	Mustard
Forage Sorghum	Hairy Vetch
Sorghum-sudangrass	

Species that provide food and habitat for natural enemies of pest:

Barley	Mustard	Hairy Vetch
Canola/Rapeseed	Buckwheat	Red Clover
Sorghum-sudangrass	Cowpea	White Clover
Forage Sorghum	Crimson Clover	Woollypod Vetch

Species that release compounds such as glucosinolates to suppress soil borne pathogens or pests:

Canola/Rapeseed	Annual Ryegrass	Buckwheat
Radish	Barley	Hairy Vetch
Turnip	Oats	Red Clover
Collards or Kale	Black Oats	White Clover
Mustard	Sorghum-sudangrass	Wollypod Vetch
Cereal Rye	Forage Sorghum	

CONSERVATION STEWARDSHIP PROGRAM

- In additon to the documentation requirements specified in the National Enhancement E340H, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

  - The Missouri NRCS Cover Crop Implementation Requirement (Code 340) will be used to plan cover crops for this purpose. The producer and NRCS planner will complete:
    - the form heading with location information.
    - the producer's objectives for applying a cover crop.
    - seeding method.
    - benchmark soil loss (existing) and planned soil loss (after cover crop)
      - include soil condition Index for each condition.
    - planned termination method.
    - the planned cover crop mixture, seeding rates, and seeding depth.
    - seed size – show number of seeds per pound of seed.

  After implementation:

  - NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
    - the heading with location information.
    - actual species seeded,
    - seed applied,
    - site prepration,
    - fertilizer applied,
    - date of seeding,
    - seeding depth, and
    - termination method and date.

  - Attach seed tags and fertilizer weight tickets to the completed Implementation Requirement form with documentation to support the completion of this practice supplement.

CONSERVATION STEWARDSHIP PROGRAM

- Evaluate the applied crop rotation and management using information provided by the producer. Document how the applied rotation met the enhancement criteria:
  - to suppress or compete with weeds,
  - break pest life cycle or suppress plant pests of pathogens,
  - provide food or habitat for natural enemies of pests, and/or
  - release compounds such as glucosinolates that suppress soil borne pathogens or pests.

United States Department of Agriculture

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.

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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E340I

Using cover crops for biological strip till

Conservation Practice 340: Cover Crop

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E340I, the following additional criteria apply in Missouri:

  For state specific cover crop lists, refer to plant information section in the Missouri NRCS Cover Crop Implementation Requirement (Code 340).

  Select a minimum of two separate cover crop species which must include one high residue cover crop species and one species for benefits of biological strip till. Mixes are desired over single species to achieve additional benefits. Select species from the following list that are adapted to the site conditions and desired cover crop benefits:

High Residue	Biological Tillage
Annual ryegrass	Canola
Barley	Radish
Oat	Turnip
Black oat	Collards or Kale
Cereal rye	Mustard
Wheat	
Triticale	
Forage sorghum	
Sorghum-sudangrass	
Pearl millet	
Crimson clover	

  Mechanical planting with a drill or planter and a precision guidance system will be required to place the cover crop seeds with precision. Use a drill to plant the entire field or acreage to the high residue cover crop selected for the producer's purposes

and suited to the site conditions. Within 2 days use a planter to place the seed of the biological strip till species or mix at 30-inch or 15-inch spacing; precision guidance will be required for this second step in establishing the cover crop.

The subsequent production crops will be established by no till methods with a production crop planted into the biological strip till cover crop rows. Precision guidance will be used for the production crop to be planted in the row of cover crop residue. No mechanical disturbance will occur prior to or during the planting operation for the portion of the field in high residue cover.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E340I, the following additional documentation requirements apply in Missouri:

  Prior to implementation:

  - The Missouri NRCS Cover Crop Implementation Requirement (Code 340) will be used to plan cover crops for this purpose. The producer and NRCS planner will complete:
    - the form heading with location information.
    - the producer's objectives for applying a cover crop.
    - seeding method.
    - benchmark soil loss (existing) and planned soil loss (after cover crop)
      - include soil condition Index for each condition.
    - planned termination method.
    - the planned cover crop mixture, seeding rates, and seeding depth.
    - seed size – show number of seeds per pound of seed.

  After implementation:

  - NRCS planner will complete the "Cover Crop Certification Worksheet" (second page of the 340 Implementation Requirements) based on information provided by the producer. Documentation will include:
    - the heading with location information.
    - actual species seeded,

- seed applied,
- site prepration,
- fertilizer applied,
- date of seeding,
- seeding depth, and
- termination method and date.

- Attach seed tags and fertilizer weight tickets to the completed Implementation Requirement form to support the completion of this practice supplement.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E381A

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.

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E381A

Silvopasture to improve wildlife habitat

Conservation Practice 381: Silvopasture Establishment

Additional Criteria for Missouri

- This enhancement is not applicable on Forest land
- Refer to CPS Silvopasture Establishment (381) and Silvopasture Information Sheet (IS-MO-381).

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E381A

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.

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E381A

Silvopasture to improve wildlife habitat

Conservation Practice 381: Silvopasture Establishment

Additional Criteria for Missouri

- This enhancement is not applicable on Forest land
- Refer to CPS Silvopasture Establishment (381) and Silvopasture Information Sheet (IS-MO-381).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Prior to and after implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). Minimum score after implementation is to be 0.6 or greater. Use the Prairie and Grassland Community Model WHAG.

Target Species: _____

WHEG score before implementation: _____

WHEG score after implementation: _____

- Prior to implementation, develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard. The grazing plan will include grazing recommendations that will enhance wildlife benefits.
-

- Minimum grazing heights of 6 inches for cool-season grasses and 12 inches for warm-season grasses must be maintained during the primary nesting season (May 1—July 15).
- Residual heights will be no less than 8 inches for cool-season and 12 inches for warm-season grasses at the time of the first killing frost.

If establishing forage:

- Use the Forage and Biomass Planting (Code 512) Conservation Practice Standard and the Vegetation Establishment Herbaceous Seeding Specification for seeding requirements. The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
- A minimum of 3 native species will be planted.
- The Missouri Wildlife Calculator can be used to document selected species and rates based on PLS per square foot. A minimum of 50 PLS per square foot are required when seed is drilled, increase the minimum seeding rate to 75 PLS per square foot when the seed is spread by broadcast methods.
- Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing (528) have been met.

If pollinators are a concern:

- Select native, perennial, grass/forb/legume species according to the Wildlife Habitat Planting (420) practice standard, the Wildlife and Pollinator Plantings Job Sheet (JS-MO420), and the Monarch Habitat Information Sheet (IS-MO-643Monarch)

- Recommended forbs include:

Leadplant	Rosinweed

Ashy Sunflower	Grayhead Coneflower
Purple Prairie Clover	Pale Purple Coneflower
Rattlesnake Master	Purple Coneflower
Tickseed Coreopsis	Black-eyed Susan
Maximilian Sunflower	Liatris (any)
Willowleaf Sunflower	Roundhead Lespedeza
Illinois Bundleflower	Sampson's Snakeroot
Wild Senna	Partridge Pea
Slender Lespedeza	Wild Indigoes (any)
Wild Bergamot	Coreopsis (any)
Blue Pitcher Sage	Butterfly Milkweed
	Sunflowers (any)

Additional Documentation Requirements for Missouri

- Provide documentation (including seed tags and receipts) of seed, shrubs, and/or trees and any fertilizer or soil amendments used for the implementation of the enhancement.
- Annually submit to the NRCS field office a field log including:
    - Livestock herd management records that include the entry and exit dates for each grazing of each pasture/paddock.
    - Records, including pictures, showing the beginning and ending heights of the forage for each time pasture/paddock is grazed.

United States Department of Agriculture

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

  - 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

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.

NRCS Documentation Review:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E382A

Incorporating "wildlife friendly" fencing for connectivity of wildlife food resources

Conservation Practice 382: Fence

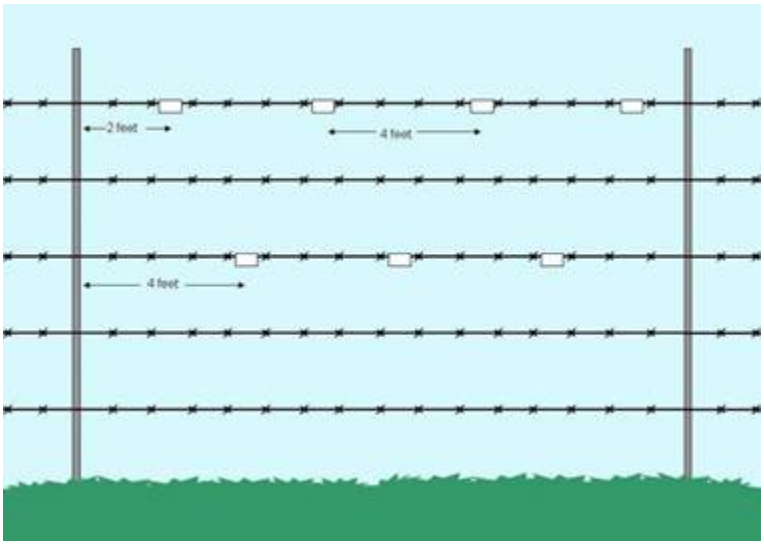
Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E382A the following additional criteria apply in Missouri:
  - If deer or other mammalian wildlife are selected as species of concern, follow guidance in Criteria One.
  - If Greater prairie-chickens are selected as a species of concern (only available within geographies identified as being in the buffer zone of a greater prairie-chicken occurrence site as noted in the Missouri Threatened and Endangered Species Heritage Database adapted for NRCS) Criteria Two guidance is to be followed.

    - Criteria One -- Improve Passage:
      - Openings/crossings should be constructed along known wildlife travel corridors. A minimum of one opening/crossing shall be constructed every ¼ mile of the planned fence length (a minimum of 20 % of all existing fence on the land use(s) must be made wildlife friendly for full implementation).
      - The width of the opening shall be a minimum of 16 ft. wide.
      - When retrofitting existing fence for developing openings/crossings use the following measurements:
        - 2-strand permanent electric – the top wire will be ≤ 36" and the bottom wire will be ≥ 18" in height. There will be a minimum of 12" between the top 2 wires.

- Multi strand barbed wire – the top wire will be ≤ 42" and the bottom wire will be ≥ 18" in height. There will be a minimum of 12" between the top 2 wires.
- Woven wire – There are two requirements to retrofit this type of fence.
  - The top strand of barbed or high tensile wire shall be covered with a PVC pipe or similar smooth material. There will be a minimum of 12" between the top 2 wires. If there is not adequate height on the post to allow for the 12" spacing, then the wire(s) should be lowered to the top of the woven wire and covered with PVC pipe.
  - A crawl under will be constructed by removing 18" of the bottom of the woven fence a minimum of 10 ft. long or raising the bottom of the fence ≥ 18" from the ground a minimum of 10 ft. long. This can be accomplished at the opening/crossing location where the top wire was adjusted, or at the nearest brace/stretch location. One crawl under will be constructed per opening/crossing constructed.

- Criteria Two -- Improve Visibility:
  - Visual markers shall be placed on the entire length of planned fence including the openings/crossings (a minimum of 20% of all existing fence) and will be highly visible vinyl markers, PVC pipe or other similar materials (no flagging tape). White vinyl "under sill" or trim strips are readily available at most hardware stores and are relatively low in cost.
  - Pieces should be at least 3" in length. Markers will be placed on the top wire and on the third strand of a multi-strand fence. On single or 2 strand fences, markers will be placed on all strands.
  - On existing woven wire fence, markers will be placed on the topmost strand then 10-12" down from top should be marked, staggered, as described below.
  - For the top wire, place the first marker 2 feet from the corner post, with 4 foot spacing for each subsequent marker.
  - For the third wire, use the same spacing except that it will begin 4 feet from the post, thus staggering the markers (see diagram and photos below).



- During implementation:
  - Avoid clearing of right-of-way vegetation for fence construction during the Missouri primary nesting season (May 1 – July 15).
  - Do not use woven wire fencing for any new construction.
  - Consider that a fence of any height is more difficult to cross when placed across a steep slope or next to a deep ditch.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E382A the following additional documentation requirements apply in Missouri:
  - Provide documentation for each treatment area and year of this enhancement including:
    - Identify types(s) of wildlife friendly fencing used.
    - Location on a map showing where wildlife friendly fence is located.
    - Photograph of each wildlife friendly fencing method used.

Cap all open top pipes for songbirds

United States Department of Agriculture

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

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.

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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E382B

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

Conservation Practice 382: Fence

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E382B the following additional criteria apply in Missouri:
    - The conventional or existing fence must meet state technical standards prior to retrofitting the offset brackets. The state technical standard is met if/when the existing permanent conventional fence deters the species of concern prior to installation of the offset wire and will continue to function for the enhancement life span.
    - New fence construction and Offset Brackets will meet Missouri Fence Specifications (including temporary wire).
    - CAUTION:
        - ALL WIRES MUST BE KEPT TIGHT AND MAINTAINED (High tensile electric wire and barbed wire). Chance for grounding out your electric fence system is high if not maintained.
        - SAFETY- chance of person or animal becoming entangled in barbed wire and in contact with electric wire are higher with this system.
        - Do not electrify barbed wire.

- **Additional Documentation Requirements for Missouri**

  There is no addition to the documentation requirements specified in the National job sheet E382B for Missouri.

United States Department of Agriculture

Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E386A

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.

- 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

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:
    - o Planning site preparation meeting NRCS Conservation Practice Standard Field Border (Code 386).
    - o Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
    - o Selecting planting techniques and timing appropriate for the site and soil conditions.
    - o Planning the use of additional erosion control, as needed for the site.
    - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the vegetation was established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests and fire.

- ☐ After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- ☐ After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____feet

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E386B

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.

- 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.

- 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:
    - o Planning site preparation meeting NRCS Conservation Practice Standard Field Border (Code 386).
    - o Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
    - o Selecting planting techniques and timing appropriate for the site and soil conditions.
    - o Planning the use of additional erosion control, as needed for the site.
    - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the vegetation was established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests and fire.

- ☐ After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- ☐ After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = _____feet

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E386C

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.

- 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.

- 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

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

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.
- ☐ 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

United States Department of Agriculture

Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E386D

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.

- 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

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.

☐ 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.

- ☐ 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E386D

Enhanced field borders to increase food for pollinators along edge(s) of a field

Conservation Practice 386: Field Border

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E386D the following additional criteria apply in Missouri:
    - Follow Conservation Practice Standard (CPS) Field Border (Code 386), Practice Specification (PS) Field Border (Code 386), and CPS Wildlife Habitat Planting (Code 420) for species selection and vegetation establishment. Utilize the Field Border (Code 386) Implementation Requirement (IR) sheet and the Ecological Sciences Tool (EST) Interim MO Seeding Calculator or the Missouri Wildlife Seed Calculator to plan the enhancement.
    - Select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. Seed mixtures planted to accomplish this enhancements must have at least 3 species in each bloom period (spring, summer, and fall). For sites with slopes <5%, seeding rates and species requirements will follow the nesting cover mix specifications found in the Wildlife and Pollinator Plantings Job Sheet (JS-MO420). For sites with slopes 5% or greater, refer to the PS Field Border (386) and Table 1 (Animals and Air Resource Concern) for seeding rate requirements.
    - Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field. Follow CPS Field Border (Code 386) and PS Field Border (Code 386) to properly plan border locations.

Additional Documentation Requirements for Missouri

CONSERVATION STEWARDSHIP PROGRAM

- In additon to the documentation requirements specified in the National Enhancement E386D, the following additional documentation requirements apply in Missouri:

  Prior to implemenation, NRCS will:

  - Provide and explain CPS Field Border (Code 386) and CPS Wildlife Habitat Planting (Code 420) as it relates to implementing this enhancement.
  - Verify and document that borders are properly located to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
  - Provide a seeding sheet or plan produced through the Field Border (Code 386) IR sheet and the EST Interim MO Seeding Calculator or the Missouri Wildlife Seeding Calculator, as appropriate.

  After implementation, Participant will:

  - Provide seed mix reports/receipts from seed vendors detailing species and amounts planted to establish the field border extension. For mixes established using PS Field Border (Code 386), also provide receipts/reports for soil amendments applied (fertilizer/lime).

  After implementation, NRCS will:

  - Utilize the Field Border IR sheet section ”Certification of Practice” or the EST Interim MO Seeding Calculator section ”Seeding Certification” to verify the enhancement plan was met.
  - Verify that the total amount of field border implemented. Total implemented amount of the field border extension = _____feet and area planted = _____square feet.

United States Department of Agriculture

Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E386E

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.

- 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.

- 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.

- ☐ 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.

- 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

MISSOURI SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E386E

Enhanced field borders to increase wildlife food and habitat along edge(s) of a field

Conservation Practice 386: Field Border

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E386E the following additional criteria apply in Missouri:
    - Follow Conservation Practice Standard (CPS) Field Border (Code 386), Practice Specification (PS) Field Border (Code 386), and CPS Wildlife Habitat Planting (Code 420) for species selection and vegetation establishment. Utilize the Field Border (Code 386) Implementation Requirement (IR) sheet and the Ecological Sciences Tool (EST) Interim MO Seeding Calculator or the Missouri Wildlife Seed Calculator to plan the enhancement. For sites with slopes <5%, seeding rates and species requirements will follow the nesting cover mix specifications found in the Wildlife and Pollinator Plantings Job Sheet (JS-MO420). For sites with slopes 5% or greater, refer to the PS Field Border (386) and Table 1 (Animals and Air Resource Concern) for seeding rate requirements.
    - Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field. Follow CPS Field Border (Code 386) and PS Field Border (Code 386) to properly plan border locations.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E386E, the following additional documentation requirements apply in Missouri:

CONSERVATION STEWARDSHIP PROGRAM

Prior to implemenation, NRCS will:

- Provide and explain CPS Field Border (Code 386) and CPS Wildlife Habitat Planting (Code 420) as it relates to implementing this enhancement.
- Verify and document that borders are properly located to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Provide a seeding sheet or plan produced through the Field Border (Code 386) IR sheet and the EST Interim MO Seeding Calculator or the Missouri Wildlife Seeding Calculator, as appropriate.

After implementation, Participant will:

- Provide seed mix reports/receipts from seed vendors detailing species and amounts planted to establish the field border extension. For mixes established using PS Field Border (Code 386), also provide receipts/reports for soil amendments applied (fertilizer/lime).

After implementation, NRCS will:

- Utilize the Field Border IR sheet section ”Certification of Practice” or the EST Interim MO Seeding Calculator section ”Seeding Certification” to verify the enhancement plan was met.

United States Department of Agriculture

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.

- 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.

- ☐ 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:
    - o Preparing a site plan that meets NRCS Conservation Practice Standard Riparian Herbaceous Cover (CPS 390).
    - o Selecting the stiff-stemmed species of grasses and/or perennial forbs best suited to site saturation and inundation conditions.
    - o Selecting planting techniques and timing appropriate for the site and soil conditions.
    - o Planning the use of additional erosion control, as needed for the site.
    - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ 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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E390A

Increase riparian herbaceous cover width for sediment and nutrient reduction

Conservation Practice 390: Riparian Herbaceous Cover

Additional Critera for Missouri

- Enhance existing buffers (must be at least 30 feet wide) to a width of at least 2.5 times the stream width or minimum 50 feet for waterbodies. No enhanced buffer should be less than 50 feet wide per side.

- Reference the Native Pollinators (JS-MO643Pollinator) job sheet for forb species selection and the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) for additional establishment recommendations. Native plant species will be used.
    - Where concentrated flow is not a concern, follow the Nesting Cover planting specifications in the Wildlife and Pollinator Plantings Job sheet (JS-MO420).

    - For sites where wetness and flooding are the main management concerns, species with a Wet Soil Tolerance Rating of Medium to High in Table 1 of the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) will be selected. Select species with stiff stems and high stem density near the ground surface to reduce water velocities and facilitate infiltration into the floodplain. Grass species with fibrous roots are desired to intercept nutrients in the soil.

- After implementation, schedule management outside of the primary nesting period (May 1 – July 15) and allow for regrowth of adequate vegetation height (recommended 8 inches for cool-season grasses and 12 inches for warm-season grasses) by time of first killing frost.
    - Mowing is not allowed as a stand-alone practice; it can only be used when in combination with disking or herbicide application.

- Haying is not permitted

Additional Documentation Requirements for Missouri

- Prior to implementation, attach the Seeding plan created in the Missouri Wildlife Seed Calculator.
- Provide digital photographs of existing buffer and newly established buffer.
- Participant will provide records, including pictures, detailing management practices implemented and the date practices were completed.

United States Department of Agriculture

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.

- Density of the vegetative stand established shall be managed for targeted wildlife habitat requirements and shall encourage plant diversity. The location, layout and vegetative structure and composition of the buffer should complement natural features.

- Corridor configuration, establishment procedures and management should enhance habitats for threatened, endangered and other plant or animal species of concern, where applicable.

- Include forbs and legumes that provide pollen and nectar for native pollinators. Utilize a diverse mix of plant species that bloom at different times throughout the year.

- If mowing is necessary to maintain herbaceous cover it will occur outside the nesting and fawning season and allow for adequate re-growth for winter cover. To protect pollinators and maintain habitat with a diversity of plant structure, a third or less of the site should be disturbed (mowed, grazed, burned, etc.) each year, allowing for recolonization of pollinators from surrounding habitat.

- Harmful plant and animal pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.

- Protect riparian vegetation by reducing or excluding haying and grazing until the desired plant community is well established, with grazing deferred for a minimum of two years.

- Control access of people, machinery, and livestock to the riparian zone with fencing.

- Design the expanded buffer enhancement for an expected life of at least 5 years.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

☐ Prior to implementation, prepare the planned buffer area for vegetation establishment. Refer to NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390). (NRCS will provide technical assistance, as needed.)

☐ 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.

- ☐ 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:
    - o Planned site preparation meets NRCS Conservation Practice Standard Riparian Herbaceous Cover (Code 390).
    - o 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.
    - o Select planting techniques and timing that is appropriate for the site and soil conditions.
    - o Plan the use of additional erosion control, as needed for the site.
    - o 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.

- ☐ 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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E390B

Increase riparian herbaceous cover width to enhance wildlife habitat

Conservation Practice 390: Riparian Herbaceous Cover

Additional Critera for Missouri

- The wildlife habitat management plan will consist of the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) or similar.

- Enhance an existing buffer to a width of at least 1.5 times the stream width or 35 feet, whichever is greater. Refer to the Wildlife Habitat Planting (420) conservation practice standard, the Wildlife and Pollinator Plantings Job Sheet (MO645), and the Native Pollinators (JS-MO634Pollinator) job sheet.

- Reference the Native Pollinators (JS-MO643Pollinator) job sheet for forb species selection and the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) for additional establishment recommendations. Native plant species will be used.
    - Where concentrated flow is not a concern, follow the Nesting Cover planting specifications in the Wildlife and Pollinator Plantings Job sheet (JS-MO420).

    - For sites where wetness and flooding are the main management concerns, species with a Wet Soil Tolerance Rating of Medium to High in Table 1 of the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) will be selected. Select species with stiff stems and high stem density near the ground surface to reduce water velocities and facilitate infiltration into the floodplain. Grass species with fibrous roots are desired to intercept nutrients in the soil.

- After implementation, schedule management outside of the primary nesting period (May 1 – July 15) and allow for regrowth of adequate vegetation height (recommended 8 inches for cool-season grasses and 12 inches for warm-season grasses) by time of first killing frost.
    - Mowing is not allowed as a stand-alone practice; it can only be used when in combination with disking or herbicide application.

- Haying is not permitted

Additional Documentation Requirements for Missouri

- Prior to implementation, attach the Seeding plan created in the Missouri Wildlife Seed Calculator.
- Provide digital photographs of existing buffer and newly established buffer.
- Participant will provide records, including pictures, detailing management practices implemented and the date practices were completed.

United States Department of Agriculture

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)

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.
- Existing functional underground drains through the riparian area will be plugged, removed or replaced with perforated pipe/end plugs or water control structures.

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

- Use tree and shrub species that are native and non-invasive. Substitution with improved and locally accepted cultivars or purpose-specific species is allowed. For plantings and seeding, only viable, high-quality and adapted plant materials will be used.

- Favor tree and shrub species that have multiple values such as those suited for timber, nuts, fruit, florals, browse, nesting, and aesthetics.

- Periodic removal of some forest products such as high value trees, medicinal herbs, nuts, and fruits is permitted provided the buffer area is not compromised by the loss of vegetation or harvesting disturbance.

- Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species.

- Harmful plant and animal pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.

- Livestock shall be controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock is present, follow a Prescribed Grazing Plan (CPS 528) and defer grazing for a minimum of two years.

- Design the expanded buffer enhancement for an expected life of at least 15 years.

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

☐ 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.

- ☐ 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:

    - o Preparing a site preparation and planting plan that meets NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) and lists the species, vegetation type, density, protection measures, and planting dates.

    - o Selecting planting techniques and timing appropriate for the site and soil conditions.

    - o Assessing impacts of drainage removal/plugging on adjacent land units and uses.

    - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

- ☐ During implementation, review any planned changes to ensure they meet the enhancement criteria.

- ☐ During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications provided to the participant.
- ☐ After implementation, verify that any underground drains through the riparian area, if they exist, were plugged, removed or replaced with perforated pipe/end plugs or structures for flow control.
- ☐ After implementation, verify the vegetation was established and any protections required are being maintained according to the specifications provided to the participant.
- ☐ After implementation verify livestock are controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock are present, verify a Prescribed Grazing Plan (Code 528) is being followed and that grazing is being deferred for a minimum of two years.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E391A

Increase riparian forest buffer width for sediment and nutrition reduction

Conservation Practice 391: Riparian Forest Buffer

Additional Criteria for Missouri

- Refer to CPS Riparian Forest Buffer (391) and Riparian Forest Buffer Job Sheet (JS-MO-391).
- Buffer will be a minimum of 50 feet wide and a maximum of 180 feet wide, measured from the top of the high bank outward perpendicularly. Existing trees should be retained along the edge of the waterbody and are included in the total buffer width.
- Grazing is not permitted in the riparian forest buffer.

United States Department of Agriculture

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)

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.
- Existing functional underground drains through the riparian area will be plugged, removed or replaced with perforated pipe/end plugs or water control structures.

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

- Use tree and shrub species that are native and non-invasive. Substitution with improved and locally accepted cultivars or purpose-specific species is allowed. For plantings and seeding, only viable, high-quality and adapted plant materials will be used.

- Favor tree and shrub species that have multiple values such as those suited for timber, nuts, fruit, florals, browse, nesting, and aesthetics.

- Periodic removal of some forest products such as high value trees, medicinal herbs, nuts, and fruits is permitted provided the buffer area is not compromised by the loss of vegetation or harvesting disturbance.

- Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species.

- Harmful plant and animal pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose. Pest management will be conducted in a manner that mitigates impacts to pollinators.

- Livestock shall be controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock is present, follow a Prescribed Grazing Plan (CPS 528) and defer grazing for a minimum of two years.

- Design the expanded buffer enhancement for an expected life of at least 15 years.

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

☐ 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.

- ☐ 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:

    - o Preparing a site preparation and planting plan that meets NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) and lists the species, vegetation type, density, protection measures, and planting dates.

    - o Selecting planting techniques and timing appropriate for the site and soil conditions.

    - o Assessing impacts of drainage removal/plugging on adjacent land units and uses.

    - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

- ☐ During implementation, review any planned changes to ensure they meet the enhancement criteria.

- ☐ During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications provided to the participant.
- ☐ After implementation, verify that any underground drains through the riparian area, if they exist, were plugged, removed or replaced with perforated pipe/end plugs or structures for flow control.
- ☐ After implementation, verify the vegetation was established and any protections required are being maintained according to the specifications provided to the participant.
- ☐ After implementation verify livestock are controlled or excluded as necessary to achieve the buffer's water quality improvement purpose. If livestock are present, verify a Prescribed Grazing Plan (Code 528) is being followed and that grazing is being deferred for a minimum of two years.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E391A

Increase riparian forest buffer width for sediment and nutrition reduction

Conservation Practice 391: Riparian Forest Buffer

Additional Criteria for Missouri

- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Refer to CPS Riparian Forest Buffer (391) and Riparian Forest Buffer Job Sheet (JS-MO-391).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Buffer will be a minimum of 50 feet wide and a maximum of 180 feet wide, measured from the top of the high bank outward perpendicularly. Existing trees should be retained along the edge of the waterbody and are included in the total buffer width.
- Grazing is not permitted in the riparian forest buffer.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.

United States Department of Agriculture

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.

- 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

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.

- 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.

- ☐ 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E391B

Increase stream shading for stream temperature reduction

Conservation Practice 391: Riparian Forest Buffer

Additional Criteria for Missouri

- Refer to CPS Riparian Forest Buffer (391) and Riparian Forest Buffer Job Sheet (JS-MO-391).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Existing riparian forest buffer width must be at least 50 feet wide. Buffer width will be increased to at least 60 feet wide, up to a maximum of 180 feet wide, measured from the top of the high bank outward perpendicularly.
- Grazing is not permitted in the riparian forest buffer.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.

United States Department of Agriculture

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.

- 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

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.

- 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.

- ☐ 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E391B

Increase stream shading for stream temperature reduction

Conservation Practice 391: Riparian Forest Buffer

Additional Criteria for Missouri

- Refer to CPS Riparian Forest Buffer (391) and Riparian Forest Buffer Job Sheet (JS-MO-391).
- Existing riparian forest buffer width must be at least 50 feet wide. Buffer width will be increased to at least 60 feet wide, up to a maximum of 180 feet wide, measured from the top of the high bank outward perpendicularly.
- Grazing is not permitted in the riparian forest buffer.

United States Department of Agriculture

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; Forest; 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.
- 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

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.

- 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.

- ☐ 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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E391C

Increase riparian forest buffer width to enhance wildlife habitat

Conservation Practice 391: Riparian Forest Buffer

Additional Criteria for Missouri

- Refer to CPS Riparian Forest Buffer (391) and Riparian Forest Buffer Job Sheet (JS-MO-391).
- Existing riparian forest buffer width must be at least 50 feet wide. Buffer width will be increased to at least 60 feet wide, up to a maximum of 180 feet wide, measured from the top of the high bank outward perpendicularly.
- Grazing is not permitted in the riparian forest buffer.

United States Department of Agriculture

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; Forest; 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.
- 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

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.

- 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.

- ☐ 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E391C

Increase riparian forest buffer width to enhance wildlife habitat

Conservation Practice 391: Riparian Forest Buffer

Additional Criteria for Missouri

- Refer to CPS Riparian Forest Buffer (391) and Riparian Forest Buffer Job Sheet (JS-MO-391).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Existing riparian forest buffer width must be at least 50 feet wide. Buffer width will be increased to at least 60 feet wide, up to a maximum of 180 feet wide, measured from the top of the high bank outward perpendicularly.
- Grazing is not permitted in the riparian forest buffer.
- Prior to implementation, NRCS will provide site preparation and planting plans that meet NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) and lists the species, vegetation type, density, protection measures, and planting dates. Provide completed Tree/Shrub Site Preparation Job Sheet (JS-MO490) and Tree/Shrub Establishment (JS-MO612) to meet planned requirements.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- After implementation, provide a report of installed practice, including receipts of trees/shrubs purchased (receipt must show size of plants), site preparation methods, planting method, and dates planted.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E472A

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.

- 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

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

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 = _____**

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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E484A

Mulching to improve soil health

Conservation Practice 484: Mulching

Additional Criteria for Missouri

- In additon to the criteria specified in the National Enhancement E484A, the following additional criteria apply in Missouri:
    - Select appropriate mulching material with a carbon to nitrogen ratio of less than or equal to 30:1. Select mulch materials from the following list:

        Alfalfa
        Crimson clover
        Red clover

    - The selected mulch will be applied evenly across the field area at a minimum rate of 1500 pounds per acre. Any application rate in excess of the minimum requirement will be determined by the mulching amount required to achieve a positive trending OM subfactor over the life of the rotation as determined by the SCI.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National Enhancement E484A, the following additional documentation requirements apply in Missouri:

    Prior to implementation:

    - Utilize the Missouri NRCS Mulching Implementation Requirements (Code 484) to develop plan for this enhancement.

CONSERVATION STEWARDSHIP PROGRAM

- Utilize RUSLE2 and WEPS to develop and document the planned crop rotation, tillage, and mulching to achieve an SCI that produces a positive trend in the OM subfactor value over the life of the rotation.

After implementation:

- Attach mulch weight tickets to the completed Implementation Requirements form to support the completion of this practice supplement.

United States Department of Agriculture

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)

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

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:

- 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.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, develop a map delineating the fields selected for improving wildlife habitat and enrolled in the enhancement.

- ☐ Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity while 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

- ☐ Prior to implementation, ensure forage harvesting tool/machinery is capable of cutting the forage at the height required to provide suitable habitat for the desired wildlife species without compromising plant vigor and stand longevity.

☐ Prior to implementation, review the State Wildlife Action Plan as it relates to implementing this enhancement and provide the following information:

Wildlife Species of Concern	
Habitat Requirements, such as plant heights to provide suitable habitat	

☐ During implementation, keep the following documentation for each field:

Field	Forage species harvested	Harvest height (inches)	Harvest Date

☐ During implementation, time harvests to benefit the desired wildlife species.

☐ During implementation, take photographs of forage cutting heights with fields and date of harvest identified.

☐ During implementation, notify NRCS of any planned changes to ensure enhancement criteria are met.

☐ After implementation, make documentation and photographs of forage cutting heights available for review by NRCS to verify implementation of the enhancement.

NRCS will:

☐ As needed, provide technical assistance to meet enhancement criteria.

- ☐ Prior to implementation, verify a map has been developed delineating the fields that will have the enhancement implemented.
- ☐ 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.
- ☐ Prior to implementation, provide and explain the State Wildlife Action Plan as it relates to implementing this enhancement.
- ☐ Prior to implementation, provide technical assistance, as needed, to:
  - Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat.
  - Develop specifications detailing the wildlife protection measures and habitat improvement.
- ☐ During implementation, evaluate any planned changes to ensure enhancement criteria are met.
- ☐ 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

United States Department of Agriculture

STATE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E511A

Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape

Conservation Practice 511: Forage Harvest Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E511A the following additional criteria apply in Missouri:
    - State identified or targeted wildlife species: northern bobwhite quail, greater prairie-chicken, or other grassland-dependent birds.
    - For all harvest activities for improving or protecting the identified wildlife species, the producer will implement at least **two** of the below actions to protect wildlife **during all harvest operations**.
        - 1. Do not cut hay on at least 1/3 of the hay acres each year. Idle strips or blocks must be at least 30 feet wide.
        - 2. For at least 1/3 of the hay acreage, hay cutting must be either before and/or after the primary nesting or fawning seasons from May 1 through July 15.
        - 3. Increase forage heights after mowing by limiting cutting heights to not less than 4 inches for cool season species and not less than 8 inches for warm season species.
    - For all harvest activities that will be conducted during the nesting/fawning season from May 1 through July 15, implement at least **two** of the following to flush wildlife during the harvest operation:
        - 1. Attach a flush bar on the mower/harvest equipment.

CONSERVATION STEWARDSHIP PROGRAM

- 2. Conduct all harvest/mowing during daylight hours.
- 3. Follow either harvest pattern below: Supply photo of pattern.
    - Begin in the center of the field and work outward, or
    - Begin on one end of the field and work back and forth across the field.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E511A the following additional documentation requirements apply in Missouri:
    - Following harvest, provide photo documentation and date harvested, to verify date of harvest, harvest heights, and amount of the unharvested portions of the field.
    - If applicable, provide a photo of the flush bar on the mower/harvest equipment.
    - If applicable, provide photo of the harvest pattern.
    - If applicable, during implementation, provide photo of the time of day (i.e. daylight hours) and indicate time when harvest was conducted.

United States Department of Agriculture

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

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.

- 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.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, ensure forage harvesting tool/machinery is capable of cutting the forage at the height required to provide suitable habitat for the desired wildlife species without compromising plant vigor and stand longevity.
- ☐ Prior to implementation, review the map delineating the fields selected for improving wildlife cover and shelter and enrolled in the enhancement.
- ☐ Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity and also maintains or improves wildlife habitat. Plan must include specifications detailing the wildlife protection measures, such as 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).
- ☐ Prior to implementation, provide the forage harvest plan to NRCS for review to confirm it meets the criteria of the enhancement.
- ☐ During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- ☐ During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- ☐ During implementation, keep the following documentation for each field:

Field	Forage species selected for harvest	Harvest height (inches)	Harvest Date

- ☐ After implementation, make documentation and photographs of forage cutting heights available for review to 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, 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	

- ☐ Prior to implementation, verify a map has been developed delineating the hayfields that will have the enhancement implemented.
- ☐ 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).

- 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.

☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.

☐ After implementation, verify the planned forage harvest was completed to specifications developed for the fields delineated.

☐ After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.

☐ 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	

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

United States Department of Agriculture

STATE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E511B

Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity

Conservation Practice 511: FORAGE HARVEST MANAGEMENT

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E511B the following additional criteria apply in Missouri:
    - State identified or targeted wildlife species: northern bobwhite quail, greater prairie-chicken, or other grassland-dependent birds that would be present for at least part of their life cycle.
    - Prior to implementation, meet with participant to complete WHEG evaluation at the site. Use the Cropland Community Model or Prairie and Grassland Community Model WHAG, whichever is appropriate.

    Existing WHAG score =_____

    - Cover and shelter habitat requirements for the wildlife species of concern will be specified in the WHEG.
    - State specified minimum forage harvest heights for the targeted species on all hay acres are:
        - not less than 4 inches for cool season species and introduced warm season grasses
        - not less than 8 inches for native warm season species

CONSERVATION STEWARDSHIP PROGRAM

- Growth height of native warm-season grasses will be an average of 18 inches prior to the first killing freeze

- Additional Considerations to improve or maintain wildlife habitat cover, shelter or continuity:

  - Whenever possible, avoid harvest during the primary nesting season, May 1 through July 15.
  - Consider cutting cool season grass as early as possible (preferably before May 10th) to avoid destruction of established nests.
  - Consider leaving unharvested buffers at least 50ft wide along some field edges.
  - Consider cutting native warm season grasses only once per year; taking a second cutting weakens plants and is likely to significantly reduce yields the next year.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E511B the following additional documentation requirements apply in Missouri:

  - Certification will include documentation of mitigating technique for each field, date applied and photos to verify plant heights.

Post Implementation WHAG score = _____ (must be 0.60 or greater)

United States Department of Agriculture

Conservation Enhancement Activity

E512A

CONSERVATION STEWARDSHIP PROGRAM

Cropland conversion to grass-based agriculture to reduce soil erosion

Conservation Practice 512 - Conservation Forage and Biomass 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. Verify plant adaptation to the area prior to planting.

- Follow state specific recommendations for planting rates, methods and dates. Seeding rates will be calculated on a pure live seed (PLS) basis. Plant at a depth appropriate for the seed size or plant material, while assuring uniform contact with soil.
- Prepare the site to provide a medium that does not restrict plant emergence.
- Plant when soil moisture is adequate for germination and establishment.
- All seed and planting materials must meet state quality standards.
- Do not plant federal, state, or local noxious species.
- Apply all plant nutrients and 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.

CONSERVATION STEWARDSHIP PROGRAM

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.*

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:
    - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
    - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512A

Cropland conversion to grass-based agriculture to reduce soil erosion

Conservation Practice 512 - Conservation Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512A the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
    - Use the guidance document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide Section IV under Conservation Practice Standard Conservation Cover (Code 327) for acceptable cultivars and rates.
    - Forage species selected will have an erosion control rating equal to or greater than Fair [see 'Erosion Control Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding Specification (Code 723)].
    - If livestock are included in the system:
        - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.

- Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.

- If haying is included in the system, during implementation following establishment, a haying plan that meets the CPS Forage Harvest Management (Code 511) must be developed.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512A the following additional documentation requirements apply in Missouri:

  - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.

  - If livestock are included in the grazing system:
    - Documentation of turn in/turn out grazing records including dates and forage heights for each field.

  - If haying will be included in the system:
    - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

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: Forage and Biomass 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.
- 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 Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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	

☐ 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:
  - o Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - o Documentation of seed 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 than 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:
    - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
    - o Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
    - o *If livestock are included in the system, develop a grazing plan 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 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512B

Forage and biomass planting to reduce soil erosion or increase organic matter to build soil health

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512B the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
    - Use the guidance document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide (FOTG) Section IV under Conservation Practice Standard (CPS) Conservation Cover (Code 327) for acceptable cultivars and rates.
        - Minimum of 2 species will be planted, at least one will be perennial.
        - Species mix planted will total at least 50% of the full rate and no single species will be represent less than 10% of the mix.
        - If soil erosion is the resource concern, select forage species with an erosion control rating of equal to or greater than Fair based on the 'Erosion Control Rating' column of Table 1 in the Vegetation Establishment Herbaceous Seeding guidance document.
    - Deep rooted species are those having a minimum rooting depth of 12" or more. Minimum rooting depths can be found in the guidance document

Plant Characteristics located in the FOTG Section IV under CPS Cover Crop (Code 340).

CONSERVATION STEWARDSHIP PROGRAM

- If livestock are included in the system:
  - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.
  - Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.

- If haying is included in the system, during implementation following establishment, a haying plan that meets the CPS Forage Harvest Management (Code 511) must be developed.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512B the following additional documentation requirements apply in Missouri:

  - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.

  - If livestock are included in the grazing system:
    - Documentation of turn in/turn out grazing records including dates and forage heights for each field.

  - If haying will be included in the system:
    - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

Conservation Enhancement Activity

E512C

CONSERVATION STEWARDSHIP PROGRAM

Cropland conversion to grass for soil organic matter improvement

Conservation Practice 512 - Forage and Biomass 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.

- 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.

CONSERVATION STEWARDSHIP PROGRAM

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.*

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.

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 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 = _____**
- ☐ 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 than can tolerate close grazing and trampling.*
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
    - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
    - o 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512C

Cropland conversion to grass for soil organic matter improvement

Conservation Practice 512 - Forage and Biomass Planting

Additional Criteria for Missouri

- In additon to the criteria specified in the National job sheet E512C the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
    - Use the guidance document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide (FOTG) Section IV under Conservation Practice Standard (CPS) Conservation Cover (Code 327) for acceptable cultivars and rates.
    - Deep rooted species are those having a minimum rooting depth of 12” or more. Minimum rooting depths can be found in the guidance document Plant Characteristics located in the FOTG Section IV under CPS Cover Crop (Code 340).
    - If livestock are included in the system:
        - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.

CONSERVATION STEWARDSHIP PROGRAM

- Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.

- If haying is included in the system, during implementation following establishment, a haying plan that meets the CPS Forage Harvest Management (Code 511) must be developed.

Additional Documentation Requirements for Missouri

- In additon to the documentation requirements specified in the National job sheet E512C the following additional documentation requirements apply in Missouri:

  - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.

  - If livestock are included in the grazing system:
    - Documentation of turn in/turn out grazing records including dates and forage heights for each field.

  - If haying will be included in the system:
    - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

Conservation Enhancement Activity

E512D

CONSERVATION STEWARDSHIP PROGRAM

Forage plantings that help increase organic matter in depleted soils

Conservation Practice 512: Forage and Biomass Planting

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

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).

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.
- 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 insure proper rate, distribution and depth of planting is maintained.
- Monitor new plantings for water stress. Depending on the severity of drought, water stress may require reducing weeds, early harvest of any companion crop, irrigating when possible, or replanting failed stands.

Documentation Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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	

- ☐ *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:
  - o Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - o Documentation of seed 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 than 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:
  - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
  - o Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  - o *If livestock are included in the system, develop a grazing plan 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.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512D

Forage plantings that help increase organic matter in depleted soils

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512D the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
    - Use the guidance document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide (FOTG) Section IV under Conservation Practice Standard (CPS) Conservation Cover (Code 327) for acceptable cultivars and rates.
    - Deep rooted species are those having a minimum rooting depth of 12” or more. Minimum rooting depths can be found in the guidance document Plant Characteristics located in the FOTG Section IV under CPS Cover Crop (Code 340).
    - If livestock are included in the system:
        - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.

- Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.

- If haying is included in the system, during implementation following establishment, a haying plan that meets the CPS Forage Harvest Management (Code 511) must be developed.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512D the following additional documentation requirements apply in Missouri:

  - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.

  - If livestock are included in the grazing system:
    - Documentation of turn in/turn out grazing records including dates and forage heights for each field.

  - If haying will be included in the system:
    - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E512E

CONSERVATION STEWARDSHIP PROGRAM

Forage and biomass planting that produces feedstock for biofuels or energy production

Conservation Practice 512: Forage and Biomass Planting

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

RESOURCE CONCERN: Plants

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

- Establish perennial grassland mixture on cropland. Mixtures shall be selected based on:
  - Minimum of 50% grass species.
  - Climatic conditions, such as annual precipitation and its distribution, growing season length, temperature extremes and the USDA Plant Hardiness Zone.
  - Soil condition and landscape position attributes such as; pH, available water holding capacity, aspect, slope, drainage class, fertility level, salinity, depth, flooding and ponding, and levels of phytotoxic elements that may be present.
  - Resistance to disease and insects common to the site or location.
  - Intended use, level of management, realistic yield estimates, maturity stage, and compatibility with other species. Verify plant adaptation to the area prior to planting.

- Follow state specific recommendations for planting rates, methods and dates. Seeding rates will be calculated on a pure live seed (PLS) basis. Plant at a depth appropriate for the seed size or plant material, while assuring uniform contact with soil.
- Prepare the site to provide a medium that does not restrict plant emergence.
- Plant when soil moisture is adequate for germination and establishment.
- All seed and planting materials must meet state quality standards.
- Do not plant federal, state, or local noxious species.
- Apply all plant nutrients and/or soil amendments for establishment purposes according to a current soil test and developed specifications.
- When planting legumes, use pre-inoculated seed or inoculate with the proper viable strain of Rhizobia immediately before planting.
- Exclude livestock until the plants are well established.
- Ground cover and root mass need to be sufficient to protect the soil from wind and water erosion.

Additional criteria when livestock are included in the system:

- Grazing plan must be developed to keep grazing periods 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%.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- Prior to implementation, select a perennial grassland mixture for establishment. If livestock are included in the system, no more than 20% of the mixture may be alfalfa. (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 soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Seeding rates	

- *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 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, documentation and photographs of turn in/turn out grazing records for each field.*

- ☐ *If livestock are included in the system, during implementation in areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.*

- ☐ 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 Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.

- ☐ 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, prior to implementation verify a grazing plan is developed to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.*

- ☐ As needed, prior to implementation, NRCS will provide technical assistance:

  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).

  - 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.

  - *If livestock are included in the system, develop a grazing plan to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.*

- ☐ Prior to implementation, verify the enhancement is planned for cropland.

- ☐ 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.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512E

Forage and biomass planting that produces feedstock for biofuels or energy production

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512E the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
    - Use the guidance document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide Section IV under Conservation Practice Standard Conservation Cover (Code 327) for acceptable cultivars and rates.
    - If livestock are included in the system:
        - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.
        - Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.

- If haying is included in the system, during implementation following establishment, a haying plan that meets the CPS Forage Harvest Management (Code 511) must be developed.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512E the following additional documentation requirements apply in Missouri:
  - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.
  - If livestock are included in the grazing system:
    - Documentation of turn in/turn out grazing records including dates and forage heights for each field.
  - If haying will be included in the system:
    - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E512F

CONSERVATION STEWARDSHIP PROGRAM

Establishing native grass or legumes in forage base to improve the plant community

Conservation Practice 512: Forage and Biomass 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 perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- Select native, perennial, grass or forbs and 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.
- 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. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet livestock forage demand during times that normal farm/ranch forage production is inadequate. When wildlife species are of concern, plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.
- Forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. Forage species planted as mixtures will exhibit similar palatability to minimize selective grazing.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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, 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	
Planting Technique	
Seeding rates	

- ☐ *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.*

- ☐ 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 for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species than 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.

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 Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- ☐ *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.*
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
  - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
  - o Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  - o *If livestock are included in the system, develop a grazing plan 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:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____

Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512F

Establishing native grass or legumes in forage base to improve the plant community

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512F the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
        - The Missouri Wildlife Calculator can be used to document selected species and rates based on PLS per square foot. A minimum of 50 PLS per square foot are required when seed is drilled, increase the minimum seeding rate to 75 PLS per square foot when the seed is spread by broadcast methods.
    - Use the guidance document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide Section IV under Conservation Practice Standard (CPS) Conservation Cover (Code 327) for acceptable cultivars and rates.
        - A minimum of 3 species will be planted.
    - When wildlife is a concern:
        - Identify the wildlife species of concern on the WHAG.
        - The grazing plan will include grazing recommendations that will enhance wildlife benefits.

CONSERVATION STEWARDSHIP PROGRAM

- Prior to and after implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), Prairie and Grassland Community Model, in the FOTG. Minimum score after implementation is to be 0.5 or greater.

  Target Species: _____
  WHEG score before implementation: _____
  WHEG score after implementation: _____

- If livestock are included in the system:
  - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.
  - Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.
  - If haying is included in the system, during implementation following establishment, a haying plan that meets NRCS Conservation Practice Standard (CPS) Forage Harvest Management (Code511) conservation practice standard must be developed.

- If haying is included in the system, during implementation following establishment, a haying plan that meets NRCS Conservation Practice Standard (CPS) Forage Harvest Management (Code511) must be developed.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512F the following additional documentation requirements apply in Missouri:

  - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.

CONSERVATION STEWARDSHIP PROGRAM

- If livestock are included in the grazing system:
  - Documentation of turn in/turn out grazing records including dates and forage heights for each field.

- If haying will be included in the system:
  - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

Conservation Enhancement Activity

E512G

CONSERVATION STEWARDSHIP PROGRAM

Native grasses or legumes in forage base

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Crop (Perennial); Pasture; Associated Ag Land

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide the structure and composition needed to enhance livestock and wildlife habitat, particularly when targeted forage supply and quality, cover, and shelter are not available in other pastures.

Criteria

- Select native, perennial, grass or forbs and 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.
- Planting method and seed bed should 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. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.

- Plants will be selected that help meet livestock forage demand during times that normal farm/ranch forage production is inadequate. When wildlife species are of concern, plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.

- Forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. Forage species planted as mixtures will exhibit similar palatability to minimize selective grazing.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, select a perennial forage species or grassland mixture for establishment. *If livestock are included in the grazing 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	
Planting Technique	
Seeding rates	

- ☐ *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 forages to recover before re-grazing occurs.*

- ☐ *If livestock are included in the grazing system, during implementation 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 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 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:

☐ 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.

☐ As needed, prior to implementation, NRCS will provide technical assistance:

- Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
- Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- *If livestock are included in the grazing 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.

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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512G

Native grasses or legumes in forage base

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512G the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
    - Use the guidance document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide Section IV under Conservation Practice Standard Conservation Cover (Code 327) for acceptable cultivars and rates.
    - If livestock are included in the system:
        - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.
        - Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.
    - If haying is included in the system, during implementation following establishment, a haying plan that meets the CPS Forage Harvest Management (Code 511) must be developed.

CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512G the following additional documentation requirements apply in Missouri:
    - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.
    - If livestock are included in the grazing system:
        - Documentation of turn in/turn out grazing records including dates and forage heights for each field.
    - If haying will be included in the system:
        - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

Conservation Enhancement Activity

E512H

CONSERVATION STEWARDSHIP PROGRAM

Forage plantings that enhance bird habitat cover and shelter or structure and composition

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land

RESOURCE CONCERN: Plants and 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 to birds.

Criteria

- Wildlife species of concern for cover and shelter will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) and will be a species that would be present for at least part of their life cycle in the geographical/physiographic region.

- The state's WHEG will be completed by an NRCS or partner wildlife biologist. Cover and shelter habitat requirements for the wildlife species of concern will be specified on the WHEG. The total WHEG score after installation of this practice will be 0.75 or greater.

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, which meet the cover and shelter needs for bird species of concern when they will be present.

- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.
- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet cover and shelter habitat requirements for specified bird species during times that normal farm/ranch forage production is inadequate. Plant selection will help to increase scores on the state's approved NRCS habitat evaluation procedure for the bird species of concern.

Documentation Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

☐ Prior to implementation, select a perennial forage species or grassland mixture for establishment. *If livestock are included in the grazing 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 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.*

- ☐ *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.*

- ☐ 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 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 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512H

Forage plantings that enhance bird habitat cover and shelter or structure and composition

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512H the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
        - The Missouri Wildlife Calculator can be used to document selected species and rates based on PLS per square foot. A minimum of 50 PLS per square foot are required when seed is drilled, increase the minimum seeding rate to 75 PLS per square foot when the seed is spread by broadcast methods.
    - Use the Guidance Document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide Section IV under Conservation Practice Standard (CPS) Conservation Cover (Code 327) for acceptable cultivars and rates. Additional references include the Wildlife and Pollinator Plantings Job Sheet (JS-MO420), Monarch Habitat Information Sheet (IS-MO-643Monarch), Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s).
        - A minimum of 3 species will be planted.

CONSERVATION STEWARDSHIP PROGRAM

- Identify the wildlife species of concern.
    - Prior to and after implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), Prairie and Grassland Community Model, in the FOTG. Minimum score after implementation is to be 0.75 or greater.

      Target Species: _____
      WHEG score before implementation: _____
      WHEG score after implementation: _____

- If livestock are included in the system:
    - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.
    - A written grazing plan will be developed using the Prescribed Grazing (528) practice standard to enhance both forage quantity/quality AND wildlife benefits.
    - Grazing periods will not exceed 7 days, followed by adequate rest periods, to allow for plants to recover before re-grazing occurs.
    - Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.

- If haying is included in the system, during implementation following establishment, a haying plan that meets NRCS Conservation Practice Standard (CPS) Forage Harvest Management (Code511) must be developed.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512H the following additional documentation requirements apply in Missouri:

    - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.

- If livestock are included in the grazing system:
  - Documentation of turn in/turn out grazing records including dates and forage heights for each field.

- If haying will be included in the system:
  - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

Conservation Enhancement Activity

E512I

CONSERVATION STEWARDSHIP PROGRAM

Establish pollinator and/or beneficial insect and/or Monarch habitat

Conservation Practice 512: Forage and Biomass 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.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Plants will be selected that help meet nectar requirements for Monarch butterflies during times that the Monarch will be present. Plant selection will help to increase scores on the state's approved NRCS Monarch butterfly habitat evaluation.

Documentation Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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	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 forages to recover before re-grazing occurs.*

☐ *If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.*

- ☐ During implementation, keep the following documentation:
    - o Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
    - o Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
    - o *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:
    - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
    - o Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
    - o *If livestock are included in the system, develop a grazing plan 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512I

Establish pollinator and/or beneficial insect and/or Monarch habitat

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512I the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
        - The Missouri Wildlife Calculator can be used to document selected species and rates based on PLS per square foot. A minimum of 50 PLS per square foot are required when seed is drilled, increase the minimum seeding rate to 75 PLS per square foot when the seed is spread by broadcast methods.
    - Use the Guidance Document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide Section IV under Conservation Practice Standard (CPS) Conservation Cover (Code 327) for acceptable cultivars and rates. Additional references include the Wildlife and Pollinator Plantings Job Sheet (JS-MO420), Monarch Habitat Information Sheet (IS-MO-643Monarch), Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s).
        - If the monarch butterfly is a target species, it is required that at least 1 species of milkweed (Asclepias spp.) is included in the seed mix.

For other pollinator species, it is recommended that at least 1 species of milkweed is included in the seed mix. See the Wildlife and Pollinator Plantings Job Sheet (JS-MO420) for acceptable Asclepias spp.

- Identify the wildlife species of concern.
  - Prior to and after implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), Prairie and Grassland Community Model, in the FOTG (minimum score after implementation is to be 0.60 or greater).
  - If the Monarch butterfly is a target species, use the Monarch Butterfly Wildlife Habitat Appraisal Guide (WHAG) (minimum score after implementation is to be 0.50 or greater).

  Target Species: _____
  WHEG score before implementation: _____
  WHEG score after implementation: _____

- A minimum of 0.5-acre block will be planted.

- If livestock are included in the system:
  - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.
  - A written grazing plan will be developed using the Prescribed Grazing (528) practice standard to enhance wildlife benefits.
  - Grazing periods will not exceed 7 days, followed by adequate rest periods, to allow for plants to recover before re-grazing occurs.
  - Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.

- If haying is included in the system, during implementation following establishment, a haying plan that meets NRCS Conservation Practice Standard (CPS) Forage Harvest Management (Code 511) must be developed.

- If haying will be included in the system, the planted area cannot be hayed during the spring, summer, or fall blooming periods of the planted forbs.

- Vegetation will not be disturbed between April 15 and October 15 unless approved by NRCS as part of a management plan intended to maintain and enhance plant diversity and vigor. Grazing is permitted during this time.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512I the following additional documentation requirements apply in Missouri:

  - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.

  - After establishment, the participant will provide annual pictures of the established planting during the blooming period to verify forb establishment and maintenance.

  - If livestock are included in the grazing system:
    - Documentation of turn in/turn out grazing records including dates and forage heights for each field.

  - If haying will be included in the system:
    - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

Conservation Enhancement Activity

E512J

CONSERVATION STEWARDSHIP PROGRAM

Establish wildlife corridors to provide habitat continuity or access to water

Conservation Practice 512: Forage and Biomass 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.
- 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

CONSERVATION STEWARDSHIP PROGRAM

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, 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	
Planting Technique	
Seeding rates	

- ☐ *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:
  - o Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
  - o Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  - o *<u>If livestock are included in the system,</u> 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512J

Establish wildlife corridors to provide habitat continuity or access to water

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E512J the following additional criteria apply in Missouri:
    - The Interim Missouri Seeding Calculator will be used to document selected species and rates, method and timing of planting, and fertilizer and lime requirements based on a current soil test. Seeding rates will be calculated on pure live seed (PLS) basis.
        - The Missouri Wildlife Calculator can be used to document selected species and rates based on PLS per square foot. A minimum of 50 PLS per square foot are required when seed is drilled, increase the minimum seeding rate to 75 PLS per square foot when the seed is spread by broadcast methods.
    - Use the Guidance Document Vegetation Establishment Herbaceous Seeding found in the Field Office Technical Guide Section IV under Conservation Practice Standard (CPS) Conservation Cover (Code 327) for acceptable cultivars and rates. Additional references include the Wildlife and Pollinator Plantings Job Sheet (JS-MO420), Monarch Habitat Information Sheet (IS-MO-643Monarch), Native Plant Cultivars and Selections For Use in Missouri (IS-MO723N) and Plant Characteristics Information Sheets (IS-MO723pc and IS-MO723s).
        - A minimum of 3 species will be planted.

CONSERVATION STEWARDSHIP PROGRAM

- Identify the wildlife species of concern on the WHAG.
  - Prior to and after implementation, complete Missouri's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), Prairie and Grassland Community Model, in the FOTG. Minimum score after implementation is to be 0.75 or greater.

    Target Species: _____
    WHEG score before implementation: _____
    WHEG score after implementation: _____

- If livestock are included in the system:
  - Prior to implementation develop a grazing plan that meets the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528), ensuring minimum grazing heights and rest periods are met based on Table 1 in the standard.
  - The grazing plan will include grazing recommendations that will enhance wildlife benefits.
  - Exclude livestock until an adequate stand is established. At a minimum, do not allow grazing until beginning grazing heights provided in Table 1 of CPS Prescribed Grazing have been met.

- Prohibit grazing or haying of identified corridor during the primary nesting/fawning period (May 1 through July 15).

- If haying is included in the system, during implementation following establishment, a haying plan that meets NRCS Conservation Practice Standard (CPS) Forage Harvest Management (Code511) must be developed.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E512J the following additional documentation requirements apply in Missouri:

  - Provide documentation (including seed tags and receipts) of seed and any fertilizer or soil amendments used for the implementation of the enhancement.

CONSERVATION STEWARDSHIP PROGRAM

- Provide a map showing corridor locations.
- After establishment, the participant will provide pictures of the established planting after the new vegetation is growing to verify successful establishment.
- If livestock are included in the grazing system:
  - Documentation of turn in/turn out grazing records including dates, forage heights, and pictures of the corridor area. Grazing periods will not exceed 7 days, followed by adequate rest periods, to allow for plants to recover before re-grazing occurs.
- If haying will be included in the system:
  - Documentation with photographs of each field before and after haying (include dates and forage heights).

United States Department of Agriculture

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, 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 pasture composition/plant vigor and improving/maintaining quantity and quality of forage for the animals' health and productivity following the recommendations of a qualifying professional, as detailed in the documentation and implementation requirements.

Criteria

- A written plan matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Removal of herbage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants, and the nutritional needs of the animals.
- Deferments will be planned and implemented for critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).
- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.).

- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- Plan grazing and/or browsing to match forage quantity and quality goals of the producer within the capability of the resource to respond to management. Plan the intensity, frequency, timing, and/or browsing to reduce animal stress and mortality from toxic and poisonous plants.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- The Certified Consultant provided recommendations or qualified, non-affiliated consultant (see documentation requirements) will be based on the National Research Council's Nutrient Requirements of Domestic Animals.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to 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 CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in forage agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in grazing lands conservation planning and grazing animal nutrition.
- ☐ During implementation, keep records to annually document prescribed grazing requirements are met.
- ☐ After implementation, make available documentation of protein and energy of consumed forages/browse based on a land grant university laboratory analysis. The analysis may be based on collected sample of the forage available to the livestock or fecal samples analyzed with appropriate Near-infrared spectroscopy (NIRS). This analysis needs to illuminate shortfalls and/or excessive amounts of protein and energy. **Samples must be submitted in a timely manner to allow for appropriate adjustments in management and/or supplementation.**
- ☐ After implementation, make grazing and supplementation records available for review by NRCS.

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.
- ☐ After implementation, review forage or fecal sampling schedule and corresponding management actions taken to determine if a supplementation plan was reasonably followed.

CONSERVATION STEWARDSHIP PROGRAM

☐ After implementation, annually review documentation provided indicating that prescribed grazing specifications have been met and to verify the enhancement has been implemented.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528A

Maintaining quantity and quality of forage for animal health and productivity

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet 528A the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Analyze forages (using either fecal samples or forage tissue sample) by an accredited land grant university laboratory.
        - Samples must be submitted within 7 business days for analysis.
    - Contact the Grazing Animal Nutrition Lab (GAN Lab) at the following website: https://cnrit.tamu.edu/index.php/nutbal/ to get guidance on the collection and submission of samples.
    - Utilize the GAN Labs Nutritional Balance Analyzer Pro (NUTBAL Pro) report to make management and/or supplementation decisions.
        - Maintain and provide a copy of the forage or fecal sample analysis report OR a copy of the NUTBAL Pro report.

- Management and/or supplementation decisions are to be documented and implemented within 14 days from receiving the analysis.

- A minimum of 6 forage or fecal samples must be analyzed and NUTBAL Pro reports received throughout each year. It is best if samples are collected approximately every 2 months or during periods of nutritional stress (e.g., extreme cold or drought).

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet 528A the following additional documentation requirements apply in Missouri:

  - Livestock herd management records will include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing pasture/paddock.

  - Photos will be taken of the field when sample is collected. Photo will accompany the test results and be maintained for review.

  - A map or aerial photo showing the pastures/paddocks making up the rotational grazing system. The layout of the pastures/paddocks both before implementation and after implementation shall be delineated on a map or photo.

United States Department of Agriculture

Conservation Enhancement Activity

E528B

CONSERVATION STEWARDSHIP PROGRAM

Grazing management that improves Monarch butterfly habitat

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Range & Pasture

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,

  - 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:

- ☐ Prior to implementation, develop a map delineating the areas where the Monarch habitat will be implemented.
- ☐ 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.
    - Map identifying all permanent pastures, water sources, and any riparian area or watershed drainage locations improved or maintained by this management.
    - Forage inventory
    - Forage-animal balance sheet
    - A grazing plan narrative describing the basis for when livestock movement or rotation will occur, including deferment plans.
    - Contingency plans for forage shortfalls and for events that trigger adverse results.
    - Monitoring locations, key species, and monitoring techniques.
- ☐ 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, 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.

- ☐ During implementation, consult with NRCS to adjust and adapt the grazing plan to current conditions to verify the changes meet enhancement criteria. Changes to the grazing plan will be documented in writing.
- ☐ After implementation, make all records available for review by NRCS to verify implementation of the enhancement.
- ☐ After implementation, complete an assessment of the site with NRCS using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

NRCS will:

- ☐ As needed, provide technical additional assistance to the participant as requested.
- ☐ 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.
- ☐ 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). 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: _____
- ☐ 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.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ 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). 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528B

Grazing management that improves Monarch butterfly habitat

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528B the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Deferment of delineated Monarch areas from June 1st thru Sept. 1st is required to provide nectar-producing forbs, including milkweed, during Monarch Butterfly migration.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528B the following additional documentation requirements apply in Missouri:
    - Submit photos of forage heights for applicable fields at beginning and ending of deferment period (June 1 and September 1).

CONSERVATION STEWARDSHIP PROGRAM

- The NRCS Monarch Butterfly Wildlife Habitat Evaluation Guide (WHEG) will be used as the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG), as referenced in the participant and NRCS requirements

United States Department of Agriculture

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

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

  - 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.
    - o 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:
    - o Grazing/wildlife habitat management plan.
    - o Monitoring data and actual use records.

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: _____

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

USDA United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528C

Incorporating wildlife refuge areas in contingency plans for wildlife

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528C the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Prior to implementation, work with NRCS to complete an assessment of the site using the Prairie and Grassland Community Model WHAG. Minimum score 0.5 or greater required prior to deferment.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528C the following additional documentation requirements apply in Missouri:
    - During and after implementation, annually submit to the NRCS field office a field log including:
        - A map or aerial photo showing the pastures/paddocks making up the rotational grazing system, including pastures/paddocks before and after implementation.

- A map identifying the refuge area or areas (pasture/paddock) of offered acres.
- Photos are to be taken of the area deferred at the start and end of the deferment period.
- If refuge area gets utilized by livestock during the life of the contract, submit livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each grazing of each pasture/paddock.

- After implementation, complete an assessment of the site using the Prairie and Grassland Community Model (WHAG).

Species of Concern: _____

WHEG score before implementation (Existing): _____

WHEG score after implementation (Planned): _____

United States Department of Agriculture

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

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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

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.

☐ 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:_____

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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528D

Grazing management for improving quantity and quality of food or cover and shelter for wildlife

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528D the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Prior to implementation, complete an assessment of the site with the participant using the Prairie and Grassland Community Model (WHAG).
    - Identify wildlife species of concern.
    - Recommended minimum grazing heights of 6 inches for cool-season grasses and 10 inches for warm-season grasses must be maintained during the primary nesting season (May 1—July 15).
    - Residual heights will be no less than 8 inches for cool-season and 12 inches for warm-season grasses at the time of the first killing frost.

Additional Documentation Requirements for Missouri

CONSERVATION STEWARDSHIP PROGRAM

- In addition to the documentation requirements specified in the National job sheet E528D the following additional documentation requirements apply in Missouri:
    - Annually submit to the NRCS field office a field log including:
        - Livestock herd management records that include the entry and exit dates for grazing of each pasture/paddock.
        - Records, including pictures, showing the beginning and ending heights of the forage for each time pasture/paddock is grazed.

Species of Concern: _____

WHEG score before implementation (Existing): _____

WHEG score after implementation (Planned): _____ (must be 0.60 or greater)

United States Department of Agriculture

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.)

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.

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: _____

NRCS Documentation Review:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528E

Improved grazing management for enhanced plant structure and composition for wildlife

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet 528E the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Prior to implementation, complete an assessment of the site with the participant using the Prairie and Grassland Community Model (WHAG).
    - Identify wildlife species of concern and the plant functional groups providing structure and composition.
    - Recommended minimum grazing heights of 6 inches for cool-season grasses and 10 inches for warm-season grasses must be maintained during the primary nesting season (May 1—July 15).
    - Residual heights will be no less than 8 inches for cool-season and 12 inches for warm-season grasses at the time of the first killing frost.

CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet 528E the following additional documentation requirements apply in Missouri:
    - Annually submit to the NRCS field office a field log including:
        - Livestock herd management records that include the entry and exit dates for grazing of each pasture/paddock.
        - Records, including pictures, showing the beginning and ending heights of the forage for each time pasture/paddock is grazed.

Species of Concern: _____
WHEG score before implementation (Existing): _____
WHEG score after implementation (Planned): _____ (must be 0.60 or greater)

USDA United States Department of Agriculture

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

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.

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.

CONSERVATION STEWARDSHIP PROGRAM

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.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

State Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E528F

Stockpiling cool season forage to improve structure and composition or plant productivity and health

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528F the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - This enhancement will be implemented following the guidance document Stockpile/Strip Graze Forage 528-GD-1 found in the Field Office Technical Guide Section IV under CPS Prescribed Grazing (Code 528).
    - Do not allow livestock access to previously grazed stockpiled areas when spring regrowth begins until grass has reached the begin grazing heights shown in Table 1 of the CPS Prescribed Grazing (Code 528).

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528F the following additional documentation requirements apply in Missouri:
    - Provide grazing records of stockpile for each treatment area.

CONSERVATION STEWARDSHIP PROGRAM

- Livestock herd management records will include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each pasture/paddock.
- Photos taken before and after grazing (forage and livestock).

- Provide current soil test and apply fertilizer and lime based on UMC Extension recommendations for cool season grass stockpile. Document date applied.
  - Soil tests recommendations provided for nitrogen represent a split application, ONLY APPLY the recommended fall rate.

- Notify NRCS field office when utilization of stockpiled forage has ceased for the year and prior to the onset of the new growing season.

- Rotate stockpiling to different pasture each year.

United States Department of Agriculture

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 year

Enhancement Description

Managing the harvest of vegetation with grazing and/or browsing animals as adjusted when following recommendations of a qualifying professional, as detailed in the enhancement criteria, generated through Pasture Condition Scoring (PCS).

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Removal of herbage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants, and the nutritional needs of the animals.
- Adjust intensity, frequency, timing and duration of grazing and/or browsing (providing sufficient recovery time to meet planned, written objectives) to meet the desired objectives for the plant communities and associated resources.
- Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) will be planned for critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).

- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.)
- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- The narrative management recommendations and implementation for duration and intensity of grazing and/or browsing will be based on the desired plant health and productivity objectives.
- 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 CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices generated through the Pasture Condition Scoring (PCS) assessment tool.

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, 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.

- ☐ During implementation, secure a Certified Forage and Grassland Professional, Certified Range Management Consultant, Certified Professional in Range Management, NRCS Technical Service Provider approved for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices to:
  1) Select a monitoring site in each forage type or forage mixture on the enrolled acreage to assess with the Pasture Condition Scoring tool.
  2) Conduct assessments on those sites using the Pasture Condition Scoring tool and document the location.
  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.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ During implementation, complete forage utilization jobsheet at the end of the grazing season for NRCS Conservation Practice Standard Prescribed Grazing (528).
- ☐ During implementation, document adjustments needed to maintain feed and forage balance.
- ☐ After implementation, provide the following items for review by NRCS:
  - o Pasture Condition Score Sheets with all field notes and locations
  - o Soil test analysis
  - o Written documentation from professional with recommendations and follow up actions.
  - o Pasture/herd in/out dates.
  - o Completed forage utilization jobsheet.
  - o Animal/forage balance sheet
  - o Written modifications to the grazing management and monitoring plan which address the resource concerns identified from the assessment.

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 jobsheet
- ☐ 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 jobsheet, animal/forage balance records and changes made to the plan to address resource concerns identified during the Pasture Condition Scoring assessments

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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528G

Improved grazing management on pasture for plant productivity and health with monitoring activities

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528G the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Assessments will be conducted using the National Pasture Condition Scoring (PCS) tool (2020 version).
    - Narrative management recommendations for each forage type (or forage mixture) on enrolled acreage. An additional PCS is to be completed following the implementation of the management recommendations that must result in a minimum score of 35. If the PCS is below 35 then additional recommendations are to be implemented followed by another PCS until the target score of 35 is reached. If the initial PCS is greater than or equal to 35, then the initial PCS must be improved by at least 5 percent.

Additional Documentation Requirements for Missouri

CONSERVATION STEWARDSHIP PROGRAM

- In addition to the documentation requirements specified in the National job sheet E528G the following additional documentation requirements apply in Missouri:
    - Graze4 will be used to calculate/document forage utilization and animal/forage balance sheet.
    - During implementation, annually submit to the NRCS field office a map or aerial photo showing the pastures/paddocks making up the rotational grazing system and a field log including:
    - Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each pasture/paddock.
    - Pasture Condition Score Sheets with field notes and locations of monitoring activities and follow up activities. Pictures are to be taken each time PCS is completed.

United States Department of Agriculture

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.

- 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 competed 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

- ☐ 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528I

Grazing management that protects sensitive areas-surface or ground water from nutrients

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528I the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - If nutrients are applied a Nutrient Management Plan that provides guidance to the application of inorganic and organic fertilizers in a way that protects sensitive areas-surface or ground water nutrients is required. The plan will include:
    - Document the source, amount, timing, and method of application and required conservation practices needed to reduce nutrient loss to surface and groundwater.
    - Follow UMC Extension guidance for nutrient (nitrogen, phosphorus, and potassium) and lime applications for forage production. Use UMC Extension guidance for soil sampling and analysis. Laboratories conducting analyses must be approved by the Missouri Soil Testing Association.
    - If organic fertilizer is applied, state specified setbacks will be followed.

- Prior to implementation, develop a map delineating the location of the riparian area or watershed drainage locations improved or maintained by management.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528I the following additional documentation requirements apply in Missouri:
  - Annually submit to the NRCS field office a field log including:
    - Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each pasture/paddock.
  - If nutrients are applied, record of amounts, date and method will be submitted.
  - A map or aerial photo showing the pastures/paddocks making up the rotational grazing system, both before and after implementation.
  - A map identifying riparian/floodplain or other sensitive areas included in offered acres.
  - During implementation, minerals feeders will be a minimum of 50’ from identified sensitive areas and/or riparian/floodplain areas.

United States Department of Agriculture

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.

- 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, obtain a written grazing plan that identifies the following:
  - 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.
  - 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.

- ☐ 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528J

Prescribed grazing on pastureland that improves riparian and watershed function

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528J the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - If nutrients are applied a Nutrient Management Plan that provides guidance to the application of inorganic and organic fertilizers in a way that protects sensitive areas-surface or ground water nutrients is required. The plan will include:
        - Document the source, amount, timing, and method of application and required conservation practices needed to reduce nutrient loss to surface and groundwater.
        - Follow UMC Extension guidance for nutrient (nitrogen, phosphorus, and potassium) and lime applications for forage production. Use UMC Extension guidance for soil sampling and analysis. Laboratories conducting analyses must be approved by the Missouri Soil Testing Association.
        - If organic fertilizer is applied, state specified setbacks will be followed.

CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, develop a map delineating the location of the riparian area or watershed drainage locations improved or maintained by management.
- Ideally, riparian pastures and those with overland flow directly into streams need to be smaller than other pastures in the grazing system to have shorter grazing periods and longer deferment periods than other pastures in the grazing system.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528J the following additional documentation requirements apply in Missouri:
  - Annually submit to the NRCS field office a map or aerial photo showing the pastures/paddocks making up the rotational grazing system and a field log including:
    - Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each pasture/paddock.
  - Additional Documentation for fields/pastures identified with sensitive and/or riparian/floodplain areas:
    - Minerals feeders will be a minimum of 50’ from identified sensitive areas and/or riparian/floodplain areas.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E528K

CONSERVATION STEWARDSHIP PROGRAM

Improved grazing management for soil compaction on pasture through monitoring activities

Conservation Practice 528: Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Manage the harvest of vegetation with grazing and/or browsing animals as adjusted when following recommendations of a qualifying professional, as detailed in the enhancement criteria, generated through pasture condition scoring (PCS).

Criteria

- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
- Removal of herbage will be in accordance with site production limitations, rate of plant growth, the physiological needs of forage plants, and the nutritional needs of the animals.
- Adjust intensity, frequency, timing and duration of grazing and/or browsing (providing sufficient recovery time to meet planned, written objectives) to meet the desired objectives for the plant communities and associated resources.
- Deferment (non-grazing period less than one year) and/or rest (non-grazing period equal or greater than one year) will be planned for critical periods of plant needs (such as post-planting or renovation, severe drought, etc.).

- Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.)
- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- Minimize concentrated livestock areas, trailing and trampling to reduce soil compaction, excess runoff and erosion. Manage grazing so as to maintain adequate ground cover, litter and canopy to maintain or improve infiltration and soil health.
- Follow these guidelines as recommended by a Certified Forage and Grassland Professional, Certified Range Management Consultant, or Certified Professional in Range Management, NRCS Technical Service Provider approved for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices generated through pasture condition scoring (PCS).

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, acquire a Grazing Management Plan with all the following components: (provide plan to NRCS for review and approval)
  - Producer goals, objectives and resource concerns
  - Forage-animal balance sheet
  - Location and condition of structural improvements
  - Grazing plan for livestock movement
  - Watering sites with availability, quantity and quality
  - Contingency plan
  - Forage inventory
  - Monitoring plan
- ☐ During implementation, secure a Certified Forage and Grassland Professional, Certified Range Management Consultant, Certified Professional in Range Management, NRCS Technical Service Provider approved for CAP 110, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices to:

  1) Select a monitoring site in each forage type or forage mixture on the enrolled acreage to assess with the Pasture Condition Scoring tool.
  2) Conduct assessments on those sites using the Pasture Condition Scoring tool and document the location.
  3) Develop a written recommendation including duration and intensity of grazing and/or browsing based on desired health and productivity objectives while addressing adequate cover, litter and canopy to maintain or improve infiltration, soil health and reduce soil compaction and other resource concerns identified during the assessment.

- ☐ During implementation, identify key grazing areas and key forage species and monitor pastures for grazing utilization.
- ☐ During implementation, keep pasture/herd in/out records.
- ☐ During implementation, complete forage utilization jobsheet at the end of the grazing season for NRCS Conservation Practice Standard Prescribed Grazing (528).
- ☐ During implementation, document adjustments needed to maintain feed and forage balance.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ After implementation, provide the following items for review by NRCS:
  - o Pasture Condition Score Sheets with all field notes and locations.
  - o Written documentation from professional with recommendations and any needed follow up actions.
  - o Pasture/herd in/out dates.
  - o Completed forage utilization jobsheet.
  - o Animal/forage balance sheet.

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 jobsheet.
- ☐ 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, verify implementation of the grazing management plan by reviewing grazing/herd in/out records, forage utilization jobsheet, animal/forage balance records and changes made to address resource concerns identified during the Pasture Condition Scoring assessments.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528K

Improved grazing management for soil compaction on pasture through monitoring activities

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528K the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Assessments will be conducted using the National Pasture Condition Scoring (PCS) tool (2020 version).
    - Narrative management recommendations for each forage type (or forage mixture) on enrolled acreage. An additional PCS is to be completed following the implementation of the management recommendations that must result in a minimum score of 35. If the PCS is below 35 then additional recommendations are to be implemented followed by another PCS until the target score of 35 is reached. If the initial PCS is greater than or equal to 35, then the initial PCS must be improved by at least 5 percent.

CONSERVATION STEWARDSHIP PROGRAM

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528K the following additional documentation requirements apply in Missouri:
    - Graze4 will be used to calculate/document forage utilization and animal/forage balance sheet.
    - During implementation, annually submit to the NRCS field office a map or aerial photo showing the pastures/paddocks making up the rotational grazing system and a field log including:
    - Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each pasture/paddock.
    - Pasture Condition Score Sheets with field notes and locations of monitoring activities and follow up activities. Pictures are to be taken each time PCS is completed.

United States Department of Agriculture

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

- 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:
  - o Inventory of structural improvements, existing resource conditions and forage
  - o Guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand of livestock
  - o A contingency plan and
  - o 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:
  - o Written grazing plan
  - o Pasture/herd in/out records
  - o Documented utilization records
  - o 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.

- ☐ 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528L

Prescribed grazing that improves or maintains riparian and watershed function-erosion

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528L the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Prior to implementation, develop a map delineating the location of the riparian area or watershed drainage locations improved or maintained by management.
    - Ideally, riparian pastures and those with overland flow directly into streams need to be smaller than other pastures in the grazing system to have shorter grazing periods and longer deferment periods than other pastures in the grazing system.

Additional Documentation Requirements for Missouri

CONSERVATION STEWARDSHIP PROGRAM

- In addition to the documentation requirements specified in the National job sheet E528L the following additional documentation requirements apply in Missouri:
    - Annually submit to the NRCS field office a map or aerial photo showing the pastures/paddocks making up the rotational grazing system and a field log including:
        - Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each pasture/paddock.
    - Additional Documentation for fields/pastures identified with sensitive and/or riparian/floodplain areas:
        - Minerals feeders will be a minimum of 50’ from identified sensitive areas and/or riparian/floodplain areas.
        - During implementation fields/pastures will not be used for supplemental feeding.
        - Grazing periods limited to 3 consecutive days, followed by 45-day deferments.
        - Photos of management activities improving riparian and watershed function.
    - Annually provide map of mineral and supplemental feeding locations. Move feeding locations to various parts of the pastures at least annually to minimize concentrated livestock areas thus improving nutrient distribution, ground cover and riparian/floodplain plant community structure and functions.

United States Department of Agriculture

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.

  - 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.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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:
    - o Written grazing plan.
    - o Pasture/herd in/out records
    - o 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528M

Grazing management that protects sensitive areas from gully erosion

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528M the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Prior to implementation, develop a map delineating the location of potential sensitive areas to protected

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528M the following additional documentation requirements apply in Missouri:
    - Annually submit to the NRCS field office a map or aerial photo showing the pastures/paddocks making up the rotational grazing system and a field log including:

CONSERVATION STEWARDSHIP PROGRAM

- Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each pasture/paddock.

- Provide documentation to verify protection and condition of target sensitive areas. Including maps showing supplemental feeding locations designed to improve livestock distribution and avoid overflow to sensitive areas.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E528O

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.

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.
- Clipping should be avoided when forage is entering dormancy. Cutting heights should maintain insulation for extreme heat or cold. Use local Cooperative Extension Service recommendations to avoid winterkill in cold climates

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)
  - o Producer goals, objectives and resource concerns
  - o Location and condition of structural improvements
  - o Watering sites with availability, quantity and quality
  - o Forage inventory
  - o Forage-animal balance sheet
  - o Grazing plan for livestock movement
  - o Contingency plan
  - o Monitoring plan
  - o Monitoring plan
- ☐ Prior to implementation, identify grazing areas and locations where clipping mature forages will occur
- ☐ Prior to implementation, provide a plan for mechanical clipping and livestock movement activities to NRCS
- ☐ During implementation keep a record of clipping activities and livestock movement
- ☐ During implementation, monitor forage maturity stages and livestock condition
- ☐ During implementation, keep record of clipping heights
- ☐ During implementation, take photos of areas immediately after clipping

- ☐ After implementation, provide the following items for review by NRCS:
  - o Map and records showing clipping areas
  - o Forage-animal balance sheet
  - o Records of livestock movement through clipping areas
  - o Documentation of clipping heights
  - o Written modifications to grazing management plan based on results of clipping forages
  - o Photos of fields after clipping activities
  - o Notify NRCS immediately after clipping

CONSERVATION STEWARDSHIP 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
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage Harvest Management (CPS 511)
- ☐ Prior to implementation, review the plan provided for livestock movement and mechanical clipping
- ☐ After implementation, review the map, record of livestock movement, clipping activities and heights and photos.
- ☐ 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

United States Department of Agriculture

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

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.
- 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.

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# × 85% = 765#
  Loss for storage and feeding waste (765# × 75%) = 574# DM/Bale

  574# DM ÷ 30# DM/Cow/Day = 19 cows would use one round bale per day

  100 cows ÷ 19 cows/round bale/day = 5.2 bales per day to feed the herd
  5.2 bales per day × 90 days= 468 bales
  468 bales ÷ 25 bales per acre = 19 acres needed to bale graze.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ 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:
  - o Producer goals, objectives and resource concerns
  - o Location and condition of structural improvements
  - o Watering sites with availability, quantity and quality
  - o Forage inventory
  - o Forage-animal balance sheet
  - o Grazing plan for livestock movement
  - o Contingency plan
  - o Monitoring plan
  - o 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: _____

- ☐ 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.
- ☐ Prior to implementation, provide current soil test results (no older than 2 years) in identified areas for bales or swaths to NRCS.
- ☐ During implementation record location(s) of bale placement or swathing.
- ☐ During implementation, keep records of livestock movement through bale or swathing areas.
- ☐ During implementation, monitor livestock condition and feed quality.
- ☐ During implementation, record swathing or mowing heights.
- ☐ After implementation, provide the following items for review by NRCS:
  - o A map showing bale or swath grazing areas.
  - o Forage-animal balance sheet
  - o Records of livestock movement through bale or swathing areas.

- 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

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ 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, provide and explain NRCS Conservation Practice Standard Forage Harvest Management (Code 511) stubble height requirements
- ☐ Prior to implementation, provide assistance with bale spacing recommendations and calculations for determining number of bales or swath rows needed
- ☐ Prior to implementation, review soils test results for identified on bale/swath grazing areas
- ☐ After implementation, review map and locations of bale/swath grazing areas
- ☐ After implementation, review records of livestock movement through bale/swath grazing areas
- ☐ After implementation, review forage-animal balance sheet
- ☐ After implementation, review records of mowing/swathing heights
- ☐ 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528P

Implementing Bale or Swath Grazing to increase organic matter and reduce nutrients in surface water

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528P the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
        - Prior to implementation, develop a map delineating the bale or swath grazing area.
        - Avoid sensitive areas.
        - Avoid steep areas.
    - Do not feed bales in the same spot twice to reduce nutrient buildup.
    - Maximum distance between bales is 100', center to center. Bales may be placed closer depending on soil conditions and producer objectives.
    - Livestock access will be based on a maximum 3-4 day supply of feed.
    - Removal of twine or net wrap is important to prevent animals from ingesting material resulting in possible death.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528P the following additional documentation requirements apply in Missouri:
    - Annually submit to the NRCS field office a map or aerial photo showing the bale or swath feeding area.
    - Livestock herd management records will include the type, size and number of livestock, along with number of bales fed and dates.
    - Submit photo of area before and after application.

United States Department of Agriculture

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

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)
  - o Producer goals and objectives
  - o Location and condition of structural improvements
  - o Watering sites with availability, quantity and quantity
  - o Forage inventory
  - o Forage-animal balance sheet
  - o Grazing plan for livestock movement
  - o Contingency plan
  - o 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:
  - o Map of paddocks used
  - o Forage-animal balance sheet
  - o Records of livestock movement through paddocks
  - o BCS monitoring plan with livestock photos
  - o Supplemental feeding plan
  - o 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

- ☐ Prior to implementation, review the plan provided for livestock movement, BCS monitoring and supplemental feed plan
- ☐ After implementation, review the livestock movement plan, BCS monitoring data, and supplemental feed contingency plan (if implemented)
- ☐ After implementation, review the modifications to the grazing management plan based on results of BCS monitoring and the supplemental feeding 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528Q

Use of body condition scoring for livestock on a monthly basis to keep track of herd health

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet 528Q the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Reference University of Missouri – Columbia publication Body Condition Scoring of Beef and Dairy Animals g2230 guidance.

Additional Documentation Requirements for Missouri

- No additional Missouri documentation required.

Body Condition Scoring of Beef and Dairy Animals

Eric Bailey
Beef State Specialist
Division of Animal Sciences

Body condition scoring (BCS) of cattle allows cattle producers to assess the level of fat reserves of cows during various production phases. When regularly used, this information can be used to formulate management and feeding decisions.

The aim of BCS is to obtain a simple and reliable measure of the level of body reserves in live animals. Though live-weight gives an indication of body size, it can be markedly affected by gut fill and stage of pregnancy. Careful training of scorers and periodic standardization have shown BCS to be accurate and useful on a within-herd basis.

Beef and dairy herds can use BCS so feeding and management can be regulated to ensure that breeding cattle attain the appropriate BCS at different stages of their production cycle. Action can then be taken to alter the condition of those cows not in the correct condition at critical stages of the cycle.

In both beef and dairy herds, BCS can be carried out regularly and easily in circumstances where weighing may be impossible or impractical. The technique is easily learned and is most useful when practiced regularly by the same person in the same herd over several years.

Practical importance

Variation in the BCS of beef cows has a number of practical implications. The condition of cows at calving is associated with length of post-partum interval; subsequent lactation performance; health and vigor of the newborn calf; and the incidence of calving difficulties in extremely fat heifers.

Condition is often overrated as a cause of dystocia in older cows. The condition of cows at breeding affects their reproductive performance in terms of services per conception, calving interval and the percentage of open cows.

Body condition scoring system

Body Condition Scores (BCS) are numbers on a scale used to describe the relative fatness or body composition of the cow. The scoring system in Missouri has a range of 1 to 9, with 1 representing very thin cows and 9 representing very fat cows. A cow with a BCS of 5 is said to be in average condition; however, descriptions of an "average" conditioned cow vary. For BCS to be most helpful, producers need to calibrate the 1 to 9 system under their own conditions. See Table 1.

Table 1
Body composition and composition changes assuming a 1,100-pound cow at BCS of 5

Body condition score (BCS)	3 (thin)	5 (average)	7 (fat)
Composition of empty body[1], in pounds			
Total weight	843	980	1,144
Fat	67 (8 percent)	157 (16 percent)	275 (24 percent)
Protein	171 (20 percent)	181 (18 percent)	191 (17 percent)
Water	564 (67 percent)	598 (61 percent)	632 (55 percent)
Mineral	39 (5 percent)	41 (5 percent)	44 (5 percent)

[1]Empty body weight is the live weight less the gut contents.

Difference in composition, pounds	BCS 3 vs. 5	BCS 5 vs. 7
Empty body weight	137	164
Fat	90 (66)	118 (72)
Protein	10 (7)	10 (6)
Water	34 (25)	34 (20)
Mineral	2 (less than 2)	3 (less than 2)

Keep the system simple. A thin cow looks very sharp, angular and skinny while fat cows look smooth and boxy with bone structures hidden from sight or touch. A description of BCS is given in Table 2.

Table 2
Description of body condition scores (adapted from Lowman, 1976)

Condition	BCS	Description
Thin	1	Severely emaciated. All ribs and bone structure easily visible and physically weak.
	2	Emaciated, similar to 1 above but not weakened. Little visible muscle tissue.
	3	Very thin, no fat on ribs or brisket, and some muscle still visible. Back easily visible.
Borderline	4	Thin, with ribs easily visible but shoulders and hindquarters still showing fair muscling. Backbone visible.
Optimum	5	Moderate to thin. Last two or three ribs can be seen. Little evidence of fat in brisket, over ribs or around tailhead.
	6	Good smooth appearance throughout. Some fat deposition in brisket and over tailhead. Ribs covered and back appears rounded.
	7	Very good flesh, brisket full, tailhead shows pockets of fat, and back appears square due to fat. Ribs very smooth.
Fat	8	Obese, back very square, brisket distended, heavy fat pockets around tailhead, and cow has square appearance due to excessive fat. Neck thick and short.

Condition	BCS	Description
	9	Rarely seen. Very obese. Description of 8 taken to greater extremes. Heavy deposition of udder fat.

Beef cows

In beef cows, body condition affects the amount and type of winter feed supplements that will be needed. Fat cows usually need only medium-quality hay and small amounts of supplement plus mineral and vitamin supplementation. Thin cows usually need high-quality hay and may also need supplements that are high in energy (+70 percent TDN), medium in protein (12 to 15 percent CP), plus mineral and vitamin supplementation.

Body condition or changes in body condition rather than live-weight changes are a more reliable guide for evaluating the nutritional status of a mature beef cow. Live weight is sometimes mistakenly used as an indication of body condition and fat reserves, but does not accurately reflect changes in nutritional status. Winter feeding studies have shown that body condition commonly decreases proportionally more than live weight, implying a greater loss of energy relative to weight.

Two animals of similar live weight may differ considerably in BCS. As an example, an 1,100-pound cow may be a 1,000-pound animal carrying an extra 100 pounds of body reserves, or a 1,200-pound cow that has lost 100 pounds of body reserves. These two animals would differ markedly in both biological and economical response to the same feeding and management regimen with possible serious consequences.

A BCS can be assigned to a cow either by visual appraisal, by palpation or by combining sight and touch. A recent study in Texas indicated that cattle could be scored equally well by palpation of fat cover or by visual appraisal. Accurate visual appraisal may be hampered by hair coat. For cattle with long hair, handling is of value, but when hair is short, handling probably is not necessary. Remember that gut fill and animals in late pregnancy may make animals appear fatter than they actually are. Figure 1 gives guidelines for determining BCS by palpation of fat cover.

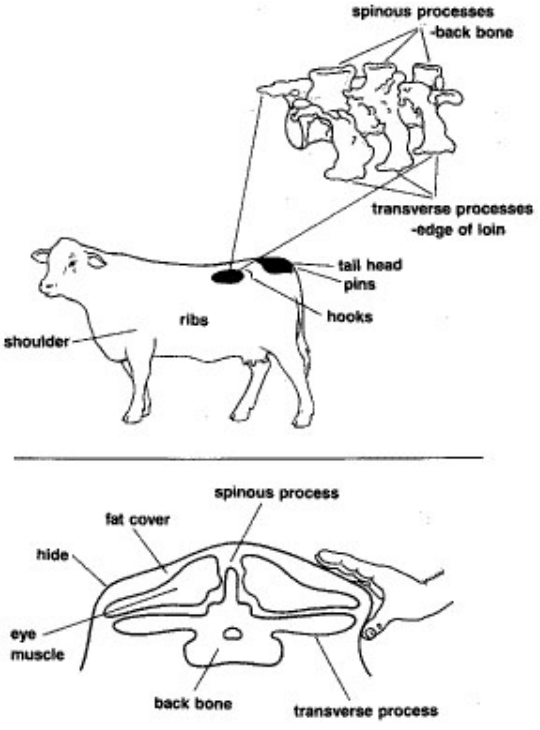


Figure 1
Anatomic areas used for BCS in beef cows. (From Condition Scoring — Suckler Cows. *East of Scotland College of Agriculture Advisory Leaflet 98.*)

Effect on reproductive performance

Calving interval and profitability

Calving interval is defined as the period from the birth of one calf to the next. To have a 12-month calving interval, a cow must conceive within 80 days of the birth of her calf. Such cows produce a pound of weaned calf cheaper than cows that take longer than 80 days, making them more profitable.

Calving intervals in excess of 12 months are often caused by nutritional stress at some point, either before the calving season or during the subsequent breeding season, which results in thin body condition and poor reproductive performance.

The relationship of body condition to calving intervals is shown in Figure 2. The thinnest cows have the longest calving intervals, while fatter cows have shorter calving intervals. Producers should evaluate their cows for condition and give supplemental feed to correct nutritional deficiencies, which are indicated when cows become thin. If not given, reproductive efficiency will remain low for cows in thin body condition.

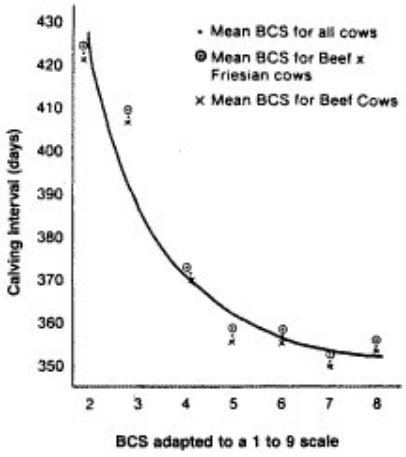


Figure 2
Relationship between cow body condition score at mating and subsequent calving interval.

Body condition at calving

The influence of nutrition before calving is a major factor that controls the length of time between calving and the return to estrus. Cows with a BCS of 4 or less at calving, as a result of low levels of precalving nutrition, will have longer intervals from calving to first estrus than cows in BCS of 5 or higher. Young cows require about one BCS higher to achieve the same reproductive performance as mature cows, since they have the added requirement of growth.

It is much easier to increase condition in cows before rather than after they calve. High nutrition after calving is directed first toward milk production. Feeding cows to gain condition early in lactation therefore leads to increased milk production but has little effect on body condition.

The acceptable BCS prior to calving is 6 or higher. These should be the target figures at calving for all cows in the herd. Anything higher than 7 may or may not be helpful. Scores at calving of less than 5 will impede reproduction.

Body condition at breeding

The influence of nutrition after calving is a major factor that controls the fertility of a cow's estrus cycle during the breeding season. A lower conception rate has been shown in cows losing condition from calving through breeding than in cows that maintain or gain condition during this time.

Cows should be in a condition score of 6 or better at calving and should maintain good body condition during the breeding period. Table 3 shows results of a trial involving more than 1,000 cows where the effect of body condition during the breeding season on pregnancy rates was studied. That trial supports the statement that condition scores of less than 5 during breeding result in extremely low pregnancy rates. Proper nutrition during the breeding season is necessary for acceptable reproduction.

Table 3
Effect of body condition during breeding season on pregnancy (Sprott, 1985)

Body condition during breeding			
	4 or less	5	6 or more
Number of cows	122	300	619
Percent pregnant after 150 days	58	85	95

Length of breeding season

Many producers believe that long breeding seasons are necessary to achieve good reproductive performance. Evidence in Figure 3 indicates that this is not true. The data represented in Figure 3 were compiled from a 1980 survey of beef cow reproductive performance in 22,000 cows from 230 herds in Missouri. The average size of herds reporting was 97 cows and the average percent calf crop weaned was 80 percent. Figure 3 shows that longer breeding seasons do not necessarily increase the pregnancy rates in beef herds.

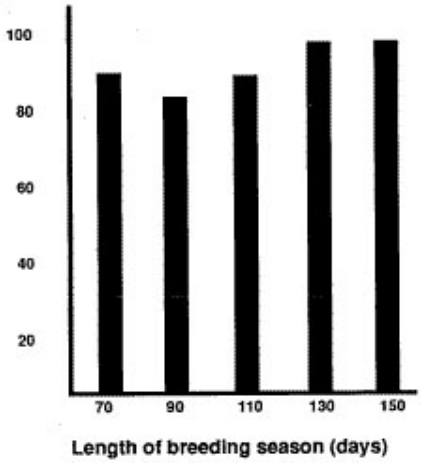


Figure 3
Relationship between length of breeding season and pregnancy rate.

Application in beef cattle

Scoring the body condition of cows 100 days before calving, then sorting them to various management groups for feeding according to need will improve reproductive performance and allow more timely use of supplemental feeding. Table 4 describes the weight change needed to reach optimum condition from 100 days before calving until calving.

Table 4
Weight change needed to reach optimum condition

BCS 100 days before calving	**Percent cows in heat after calving at:**	**Pounds of TDN per day**

BCS 100 days before calving	Percent cows in heat at: 60 days	At 90 days	Pounds of TDN per day
BCS 1 to 3	46 percent	66 percent	12 to 15
BCS 4 to 6	60 percent	81 percent	9 to 10
BCS 7 to 9	91 percent	100 percent	6 to 7

BCS 100 days before calving	Description of condition	Weight change needed
1	Emaciated	Gain 350 pounds
2	Very thin	Gain 300 to 350 pounds
3	Thin	Gain 200 to 300 pounds
4	Borderline	Gain 150 to 200 pounds
5	Moderate	Gain weight of fetus only (100 pounds)
6	Moderate to Good	Gain weight of fetus only (100 pounds)
7	Fleshy	No weight gain needed
8	Fat	Can probably lose 100 pounds
9	Extremely fat	Can probably lose 150 pounds

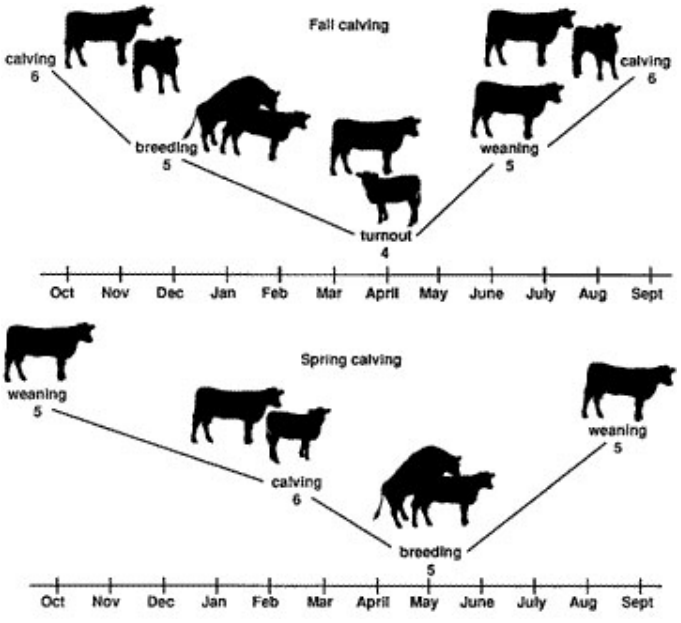
Target body condition scores

Fall-calving herds

In a fall calving herd, cows should be in BCS of 6 or higher at calving. In general, if pastures are adequate during the summer, this is easy to achieve. Cows in BCS of 6 can afford to lose one BCS between calving and breeding without adversely affecting reproduction.

Because cows are lactating between calving and breeding and pasture quality is declining, a loss of one BCS is typical. These cows may lose one more BCS after breeding and before pasture turnout in the spring. They will be lactating during this time and likely to be eating harvested forages. Their BCS should increase when they go to grass, particularly after the calf is weaned, so that they reach BCS of 6 at calving to begin another yearly cycle. Figure 4 illustrates changes in BCS in a fall calving herd.

Figure 4
Target body condition scores for fall- and spring-calving beef cows through a yearling production cycle.



Spring-calving herds

Spring-calving cows should be in BCS of 6 or higher when they calve. Lactation and the fact that the cows are still consuming harvested forages will generally result in loss of one BCS following calving. This loss is not detrimental if cows are in moderate to fleshy condition (BCS 6 or 7) at calving. But thin- to borderline-conditioned cows (BCS 3 or 4) will show decreased reproduction if they lose further condition during this period. Cows in BCS of 5 at breeding should be able to maintain their condition until weaning. They will need to gain one BCS between weaning and calving so that they reach calving at a BCS of 6 (Figure 4).

Young cows

Immature cows continue growth until approximately 4 years of age. These young cows should be maintained through the yearly cycle about one BCS higher than mature cows to achieve the same reproductive performance.

Dairy cows

Dairy cows generally are in a negative energy balance until 9 to 12 weeks of lactation. Managing body condition can help get them bred back. In dairy cows, the roughage and concentrate feeds are needed for a substantial production of milk, which typically peaks five to eight weeks after calving.

In addition, as in beef cows, feedstuffs are used for maintenance, live weight gain and fetal growth in pregnancy. Ideally, body condition scoring should be done on each cow five times a year:

- Body condition scoring 60 to 100 days before drying off permits a controlled increase or decrease in their body condition, because fat can most efficiently be deposited at this time.
- At drying off, the BCS should be the same as that anticipated at calving (score 5 through 7).
- At calving, each pound of body fat provides enough energy for 7 pounds of milk. Most healthy dairy cows are in a negative energy balance for much of the first three months of a lactation. Animals with a low BCS will tend to become far too thin in the first weeks after calving. This will result in a low conception rate and an uneconomically long calving to breeding interval. This is similar to beef cattle, where a delay to the onset of first estrus is seen in cows with a low BCS such as 4. Many dairy cows fail to exhibit "heat" unless they are in a positive energy balance.

More feed to the newly calved dairy animal tends to be converted primarily into milk. First-calf dairy heifers should have a BCS of 5 or 6 at calving. Calving difficulties increase when heifers are fatter. Fetal death, bruising of the birth passage and pinched nerves leading to lameness may result. Also, overconditioned cows are prone to ketosis, a condition caused by an unusually high amount of ketone (acetone) substances in tissues and fluids.

- In the first three months of lactation the BCS in a dairy cow should not drop more than 3 points. In other words, it should not fall below 5.
- At 120 days after calving, in the early stages of pregnancy, cows should be reaching their optimal weight and BCS should again be 5 through 7.

Cows with a high BCS at calving (7 or above) have been found to have a lower 305-day yield than dairy cows with a BCS of 5. Overconditioning of dairy cows at the end of lactation and in the dry period should therefore be avoided.

Table 5 shows the target body scores and timing of scoring in dairy cows.

Table 5

Timing	Scores
100 to 60 days before drying off	5 to 7
At drying off	5 to 7
At calving: cows	5 to 7
At calving: heifers	5 to 6
At 21 to 40 days after calving (prebreeding exam)	4 to 5
At 90 to 120 days after calving (time of pregnancy check)	5 to 7

References

- Dunn, R.T. Jr., M.F. Smith, T.J. Gall and J.W. Massey. 1982. "Survey of Reproductive Performance in Missouri Beef Herds." *MO Beef Cattle Research Report* 101:56.
- Herd, D.B. and L.R. Sprott. "Body Condition, Nutrition and Reproduction of Beef Cows." *Texas Agricultural Extension Service Bulletin.* B-1526.
- Animal Production Advisory Leaflet. 1976. Condition Scoring-Suckler Cows. East of Scotland College of Agri. Advisory Leaflet 98.
- Kilkenny, J.B. 1978. "Reproductive Performance of Beef Cows," *World Review of Animal Production.* 14:3.
- Lowman, B.G., N.A. Scott, and S.H. Somerville, 1976. "Condition Scoring of Cattle," *East of Scotland College of Agriculture Bulletin 6.*
- Nelson, T.C., R.E. Short, W.L. Reynolds, and J.J. Urick, 1985. "Palpated and Visually Assigned Condition Scores Compared with Weight, Height, and Heart Girth in Hereford and Crossbred Cows," *J. Animal Sci.* 60:2.
- Sprott, L.R. 1985. Unpublished data.

Portions of this guide were adopted from Texas Agricultural Extension Service Bulletin B-1526, "Body Condition, Nutrition and Reproduction of Beef Cows;" Dennis B. Herd and L.R. Sprott.

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United States Department of Agriculture

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

  - 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.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

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:

- ☐ 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

United States Department of Agriculture

STATE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E528R

Management Intensive Rotational Grazing

Conservation Practice 528: Prescribed Grazing

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E528R the following additional criteria apply in Missouri:
    - Prior to and during implementation, the NRCS Conservation Practice Standard (CPS) Prescribed Grazing (Code 528) must be met, including use of supporting documents and tools as needed, to meet the criteria of this enhancement.
    - Submit a map delineating the area where the enhancement will be applied. Include existing fields/paddocks system, along with planned subdivisions.
    - Grazing efficiency will be increased by subdividing offered acres at least once with permanent or temporary wire. The higher efficiency system will be maintained for a minimum of 210 days annually. No grazing period will exceed 7 days.
    - Adequate water is required in every field/paddock offered.
    - Grazing in riparian areas is limited to 3 consecutive days.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E528R the following additional documentation requirements apply in Missouri:

CONSERVATION STEWARDSHIP PROGRAM

- Annually submit to the NRCS field office a map or aerial photo showing the pastures/paddocks making up the rotational grazing system and a field log including:
- Livestock herd management records that include the type, size and number of livestock along with forage height measurements at the time of entry and exit (include dates) for each pasture/paddock.
- Annually monitoring will be recorded on a Pasture Condition Scoring sheet (2020 version) for each enrolled field/pasture.

United States Department of Agriculture

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 & mixed); Crop (perennial)

RESOURCE CONCERNS: 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).

Criteria

- Documentation of producer's record of nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- For Nitrogen, Phosphorus, and Potassium (N-P-K), rates of application are to be agronomic application rate (based on soil test and yield goal).
- Minimize soil surface disturbance during nutrient placement.
- **Utilize two or more nutrient use efficiency strategies or technologies** to reduce nutrient loss risk and improve nutrient use efficiency. Select two or more of the strategies and technologies below:

- Use Enhanced Efficiency Fertilizer (EEF) products with 1 or more nutrient applications.
  - Nitrogen or phosphorous EEF products recommended by state Land Grant University (LGU) and concurred with by NRCS on all treatment acres to supply at least 50% of the pre-emergent and early post emergent LGU recommended nitrogen or phosphorous requirements for the crop(s) grown.
- Use in-season soil nitrate sampling.
  - Use pre-sidedress soil nitrate test (PSNT) to determine the need and/or amount of additional nitrogen to be applied during sidedress/topdress N application. Conduct a PSNT on a selected crop (e.g. corn) to test if additional N fertilizer is needed.
- Use in-season plant tissue sampling and analysis as a complement to soil testing.
  - Follow local LGU and/or laboratory guidelines for interpretations of the results and appropriate adjustments in the application of N and other nutrients. *End of season stalk nitrate testing is not applicable if the enhancement is only contracted for one year, as results must be used to evaluate and adjust nutrient management in the following year, as needed.*
- Split 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.
- Time nutrient application timing to match nutrient uptake timing.
  - Apply nutrients no more than 30 days prior to planting date of annual crops.
- Nutrient placement below soil surface.
  - Nutrients are injected or incorporated at time of application.
- Use of nitrification inhibitors to delay the nitrification process, 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.

o Use of urease inhibitors to temporarily reduce the activity of the urease enzyme and slow the rate at which urea is hydrolyzed.

- Materials must be defined by the Association of American Plant Food Control Officials (AAPFCO) and be accepted for use by the State fertilizer control official, or similar authority, with responsibility for verification of product guarantees, ingredients (by AAPFCO definition) and label claims.
- Application timing, method, N source, soil texture, and tillage 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.

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.
- ☐ Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K).
- ☐ Prior to implementation, select two or more of the nutrient use efficiency strategies or technologies. **Selections:**_____
- ☐ During implementation, keep records to document actual nutrient applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K).
- ☐ During implementation, minimize soil surface disturbance during 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:
    - o In-season soil nitrate sampling. Records and documentation must include results (including reference strips) and adjustments in nutrient management based on results.
    - o In-season plant tissue sampling and analysis. Records and documentation must include type of test used (stalk, leaf, chlorophyll, infrared, or other plant tissue), results (including reference strips), and adjustments in nutrient management based on results.
    - o Nutrient placement below soil surface. Records and documentation must include method of injection or incorporation 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E590A

Improving nutrient uptake efficiency and reducing risk of nutriend losses

Conservation Practice NUMBER: 590: Nutrient Management

Additional Criteria for Missouri

- For Missouri, the recognized LGU (land-grant university) is the University of Missouri-Columbia Extension Service (UMC Extension).
- Follow soil test methods and fertilizer recommendations for NPK from the UMC Extension (based on soil test and yield goal).
- There are no EEF phosphorus products currently recommended by UMC Extension.
- UMC Extension has not published guidance for PSNT (pre-sidedress nitrate testing) in Missouri. Guidance for pre-plant soil nitrate testing (PPNT) is provided in UMC Extension Guide Sheet G9177, Preplant Nitrogen Test for Adjusting Corn Nitrogen Recommendations. Soil samples taken to the 2-ft depth are used as a credit to a nitrogen fertilizer recommendation when soil test nitrate is greater than 50 lbs. N/ac.
- Post-emergent nitrogen reductions can be made following guidance in Missouri Agronomy Technical Note No. 35.
- Fertilizer materials and additives acceptable for use in Missouri are listed by purpose:
    - Slow-release fertilizers
        - Urea-formaldehyde
        - Magnesium-ammonium phosphate
        - IBDU (isobutylidene diurea)
    - Controlled-release fertilizers
        - Sulfur-coated urea
        - Polymer-coated urea (ESN®)
    - Nitrification inhibitors
        - Pronitridine (N-cyanoguanindines)

- Nitrapyrin (2-chloro-6-(trichloromethyl)-pyridine)
- Terrazole (5-ethoxy-3-trichloroimethyl-1,2,4-thiadiazol)
- DCD (Dicyandiamide)

- Urease inhibitors
  - NBPT ((N-(n-butyl) thiophosphoric triamide)
  - PPD (Phenyl Phosphorodiamidate)

United States Department of Agriculture

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 ADDRESSED: 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 yield maps using soils data, current soil test results, and a yield monitoring system with GPS receiver to correlate field location with yield. 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.

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 yield 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 yield 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E590B

Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies

Conservation Practice 590: Nutrient Management

Additional Criteria for Missouri

- For Missouri, the recognized LGU (land-grant university) is the University of Missouri-Columbia Extension Service (UMC Extension).

Additional Documentation Requirements for Missouri

- Provide an explanation and justification for how management zones are defined and distinguished.
- Prior to implementation, develop and document an as-recommended map showing the planned nutrient budget, yield goal, and applications for the field (must include at a minimum N-P-K, expressed as pounds/acre N, P_2O_5, and K_2O). Follow soil testing methods and fertilizer recommendation guidance from the University of Missouri-Columbia (UMC) Extension Service. Develop planned variable-rate application layers (maps and/or tabular statistics).
- Provide as-applied maps from the variable-rate applications to show that actual application follows the previously developed as-recommended maps.

United States Department of Agriculture

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.

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.
    - Post emergent N may be reduced 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 yield maps using soils data, current soil test results, and a yield monitoring system with GPS receiver to correlate field location with yield. 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. A detailed hay feed movement plan will be developed, 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.

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.

- ☐ Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K). *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:

    - o Nutrient application placement below soil surface. Records and documentation must include method of injection or incorporation and depth.

    - o 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.

☐ 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.

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E590C

Improving nutrient uptake efficiency and reducing risk of nutrient losses on pasture

Conservation Practice 590: Nutrient Management

Additional Criteria for Missouri

- For Missouri, the recognized LGU (land-grant university) is the University of Missouri-Columbia Extension Service (UMC Extension).
- For post-emergent nitrogen reductions, follow guidance in Missouri Agronomy Technical Note No. 35.

Additional Documentation Requirements for Missouri

- For variable-rate fertilizer applications, follow this guidance:
  - Provide an explanation and justification for how management zones are defined and distinguished.
  - Prior to implementation, develop and document an as-recommended map showing the planned nutrient budget, yield goal, and applications for the field (must include at a minimum N-P-K, expressed as pounds/acre N, P_2O_5, and K_2O). Follow soil testing methods and fertilizer recommendation guidance from the University of Missouri-Columbia (UMC) Extension Service. Develop planned variable-rate application layers (maps and/or tabular statistics).
  - Provide as-applied maps from the variable-rate applications to show that actual application follows the previously developed as-recommended maps.

United States Department of Agriculture

Conservation Enhancement Activity

E612A

CONSERVATION STEWARDSHIP PROGRAM

Cropland conversion to trees or shrubs for long term improvement of water quality

Conservation Practice 612: Tree/Shrub Establishment

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Cropland conversion to trees and shrubs for long term erosion control and improvement of water quality. Trees and shrubs are established on cropland where annually-seeded cash crops have been grown. Tree and/or shrub species are selected for their efficacy in holding soil, and the planting design is configured to control runoff and trap sediment.

Criteria

- Current land use must be cropland. Soil must have been cultivated for crop production at least once within the last three years.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to NRCS Conservation Practice Standard (CPS) Tree/Shrub Site Preparation (Code 490).
- A combination of tree and shrub species will be used. Species will be adapted to site conditions and selected for their extensive, spreading root systems, rapid establishment, and tolerance for pollutants, nutrients, or contaminants contained in runoff or soils at the site.
- No plants on the Federal or state noxious weeds list shall be planted.
- Only viable, high-quality and adapted planting stock or seed will be used.

- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Tree or shrub arrangement and spacing will be designed specifically to intercept runoff and trap sediment. The establishment phase will include other forms of erosion control as needed (e.g., mulch, filter fabric) until plantings have achieved the desired purpose of controlling erosion and improving water quality.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival.
- The seeding and/or planting will be protected from plant and animal pests (i.e. feral pigs, wild deer, wildlife or livestock). Refer to NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression.
- The seeding and/or planting will be protected from fire. Refer to NRCS CPS Fuel Break (Code 383) to assist with site-specific strategies for fire pre-suppression, protection and monitoring.
- Each site will be evaluated to determine if mulching, supplemental water or other cultural treatments (e.g., tree protection devices, shade cards, brush mats) will be needed to assure adequate survival and growth.
- Evaluate residual chemical carryover prior to planting. Alter species selection and/or timing of planting/seeding to achieve adequate seed germination and/or seedling establishment.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490). (NRCS will provide technical assistance, as needed.)
- ☐ Prior to implementation, select a combination of tree and shrub species selected for their extensive, spreading root systems, rapid establishment, and tolerance for pollutants, nutrients, or contaminants contained in runoff or soils at the site. (NRCS will provide technical assistance, as needed.)

Species	Note specific species characteristic(s)

- ☐ Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Arrangement and Spacing	

- ☐ During implementation, use forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- ☐ During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- ☐ During implementation, protect the planting from plant and animal pests and fire.
- ☐ During implementation, maintain all erosion control needed for the site.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ Prior to implementation, verify the enhancement is planned for cropland.
- ☐ 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.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- ☐ Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
    - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
    - o Selecting a combination of tree and shrub species.
    - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
    - o Planning the use of additional erosion control, as needed for the site.
    - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the planned trees and shrub species were established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests and fire.

- ☐ After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E612A

Cropland conversion to trees or shrubs for long term improvement of water quality

Conservation Practice 612: Tree/Shrub Establishment

Additional Criteria for Missouri

- Refer to CPS Tree/Shrub Establishment (612) and Tree and Shrub Guidance Document (612-MO-GD).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Livestock will be excluded from planting area.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.

United States Department of Agriculture

Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E612B

Planting for high carbon sequestration rate

Conservation Practice 612: Tree/Shrub Establishment

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

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant tree species and use stocking levels for higher growth to increase the rate of carbon sequestration (capture). Use species with a longer life span as well as relatively fast growth, and species suitable for durable manufactured products. Increase stocking levels in forests that are not fully stocked. Implement afforestation on appropriate open lands.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Trees and shrubs will be selected for their rate of growth and suitability for use in durable manufactured products as well as their adaptability to site conditions. Refer to state lists.
- Trees and shrubs will be planted on selected areas within any land use.
- Trees and shrubs will be planted in areas with adequate sunlight. If plantings are used to supplement stocking within existing forested acreages, plant trees where light conditions are suitable. Planting rates will follow State NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612).

- No plants on the Federal or state noxious weeds list, or plants known to be aggressive and/or potentially invasive in the local area, shall be planted.
- Planting or seeding rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.
- Only viable, high-quality and adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Air and Water Quality.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS Conservation Practice Standard Tree/Shrub Site Preparation (490). (NRCS will provide technical assistance, as needed.)
- ☐ Prior to implementation, select a combination of trees and shrubs for a longer life span as well as relatively fast growth, and suitability for production of durable manufactured products, and their adaptability to site conditions. (NRCS will provide technical assistance, as needed.)

Species	Note selected species characteristic(s)

- ☐ Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site light and soil conditions. (NRCS will provide technical assistance, as needed.)

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement and Spacing			

- ☐ During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)
- ☐ During implementation, protect plantings from competition from invasive plants.
- ☐ During implementation, protect the planting from plant and animal pests and fire.
- ☐ During implementation, notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

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.

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- ☐ Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
  - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
  - o Selecting a combination of tree and shrub species to establish stocking levels that meet enhancement criteria.
  - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
  - o Planning the use of additional erosion control, as needed for the site.
  - o Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the planned trees and shrub species were established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests and fire.
- ☐ After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E612B

Planting for high carbon sequestration rate

Conservation Practice 612: Tree/Shrub Establishment

Additional Criteria for Missouri

- Refer to CPS Tree/Shrub Establishment (612) and Tree and Shrub Guidance Document (612-MO-GD).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Plant trees at the rate of 544 per acre.
- Select from the following list of species that have a fast growth rate and/or are suitable for durable manufactured products. Other species may be applicable with approval from NRCS Area Forester.
    - Fast Growth: Eastern Cottonwood, Silver Maple, Pin Oak, Tulip Poplar, American Sycamore, River Birch, Hackberry, Bald Cypress
    - Durable Manufactured Products: Black Walnut, Northern Red Oak, Black Oak, White Oak, Swamp White Oak, Bur Oak, Black Cherry, Hickory (includes Pecan), Shortleaf Pine
- Livestock will be excluded from planting area.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.

USDA United States Department of Agriculture

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; Range; Associated Ag Land

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 15 YEARS

Enhancement Description:

Establish trees and/or shrubs to restore elements of plant diversity that have been lost through past diseases or improper management. For example, disease-resistant varieties of elm and chestnut can be established to restore the ecological functions of American elm and American chestnut. At the stand level, past forest management may have eliminated certain native tree species. Restoring stand-level diversity and function addresses a wide array of resource concerns and strengthens ongoing management activities. This enhancement improves a forest that is already in good condition by increasing plant diversity, and improving health and vigor through adding plants with resistance to disease, pests, or other local hazards. Additional benefits include contributing to carbon storage, and providing diversity in wildlife habitat and food sources.

Criteria:

States will apply general criteria from the NRCS National Conservation Practice Standard (CPS) Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.

- Trees/shrubs selected for planting will be adapted to site conditions and suited for the restoration of stands where past impacts of disease and/or pests has reduced species diversity.
- No trees on the Federal or state noxious weeds list, or trees known to be aggressive and/or potentially invasive in the local area, shall be planted.

- A minimum of three different species of trees and/or shrubs should be planted. An exception is in situations where a lost species is being restored to a fully-stocked forest stand (i.e., American elm, American chestnut).
- Trees/shrubs selected must be of good quality. Only viable, high-quality and adapted planting stock or seed will be used.
- Proper planting dates and care in handling and planting the trees/shrubs will ensure an acceptable rate of survival.
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Planting density will be adequate to accomplish the long-term goal for the property.
- Survival surveys must be conducted to determine if targeted goals are met.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Refer to criteria in NRCS CPS Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants and other environmental stressors.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS CPS Tree/Shrub Site Preparation (Code 490). (NRCS will provide technical assistance, as needed.)

- ☐ Prior to implementation, select a combination of at least three native tree and shrub species that will increase plant and stand diversity and use plants with established resistance to known disease, pests, or other local hazards. (NRCS will provide technical assistance, as needed.)

Species	Note specific species characteristic(s)

- ☐ Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Arrangement and Spacing	

- ☐ During implementation, use forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- ☐ During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- ☐ During implementation, protect the planting from plant and animal pests and fire.
- ☐ During implementation, maintain all erosion control needed for the site.

NRCS will:

- ☐ Prior to implementation, verify the land use planned for this enhancement.
- ☐ 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.

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- ☐ Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
  - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (490).
  - o Selecting a combination of native and disease resistant tree and shrub species.
  - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
  - o Planning the use of additional erosion control, as needed for the site.
  - o Preparing specifications for applying this enhancement for each site using approved 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 native trees and shrub species were established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests and fire.
- ☐ After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E612C

Establishing tree/shrub species to restore native plant communities

Conservation Practice 612: Tree/Shrub Establishment

Additional Criteria for Missouri

- Refer to CPS Tree/Shrub Establishment (612) and Tree and Shrub Guidance Document (612-MO-GD).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Plant only native tree and shrub species that are identified on the associated ESD species list.
- Livestock will be excluded from planting area.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612D

Adding food-producing trees and shrubs to existing plantings

Conservation Practice 612: Tree/Shrub Establishment

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

RESOURCE CONCERN: Plants, Animals

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant food-producing trees and shrubs for wildlife or human consumption within windbreaks, alley cropping, multi-story cropping, silvopasture systems, and/or riparian forest buffers.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Plant tree, shrub, and bramble species that produce food and/or culinary items to create an edible landscape. See State lists for suitable woody plants.
- Apply at least one of the following activities, within existing windbreaks, alley cropping, multi-story cropping, silvopasture systems, and/or riparian forest buffers, to improve edible food production:
  - 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 bramble species (3 or more, using native species whenever possible) with varying flowering times to favor pollinator species and to provide an extended time frame for available food.
- Trees and shrubs will be planted on selected areas within any land use that contains an agroforestry installation. Groupings of trees and shrubs will be designed for best growth. Further considerations are visual appeal, proximity to farmsteads, proximity to areas of wildlife use or viewing, or other locations depending on landowner objectives.
- Maximize planting space by creating vertical structure with varying plant heights and plant sizes.
- Minimize herbicide use. Use spot weed treatments and avoid spraying when flowers are present.
- No plants on the Federal or state noxious weeds list, or plants known to be aggressive in the local area, shall be planted.
- Planting rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.
- Only viable, high-quality and adapted planting stock will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique, type of planting stock, and timing will be appropriate for the site and soil conditions.

CONSERVATION STEWARDSHIP PROGRAM

- Refer to criteria in NRCS CPS Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS Conservation Practice Standard Tree/Shrub Site Preparation (490). (NRCS will provide technical assistance, as needed.)
- ☐ Prior to implementation, select the required number and diversity of tree and shrub species (preference for native edible food plants) that will increase food and forage production for wildlife and humans. (NRCS will provide technical assistance, as needed.)

Species	Note specific species characteristic(s)

- ☐ Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Arrangement/Spacing	

- ☐ During implementation, use forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- ☐ During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- ☐ During implementation, protect the planting from plant and animal pests and fire.
- ☐ During implementation, maintain all erosion control needed for the site.

NRCS will:

- ☐ Prior to implementation, verify the enhancement is planned for the appropriate land use.

- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- ☐ Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation meeting NRCS CPS Tree/Shrub Site Preparation (Code 490).
  - Selecting a combination of native and disease resistant tree and shrub species.
  - 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.
  - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the planned native trees and shrub species were established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests and fire.
- ☐ After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

NRCS Documentation Review:

CONSERVATION STEWARDSHIP PROGRAM

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612D

Adding food-producint trees and shrubs to existing plantings

Conservation Practice 612: Tree/Shrub Establishment

Additional Criteria for Missouri

- Refer to CPS Tree/Shrub Establishment (612) and Tree and Shrub Guidance Document (612-MO-GD).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Livestock will be excluded from planting area.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.

United States Department of Agriculture

Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E612E

Cultural plantings

Conservation Practice 612: Tree/Shrub Establishment

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

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 15 years

Enhancement Description

Plant trees and shrubs that are of cultural significance, such as those species utilized by Tribes in traditional practices, medicinal plants, species used in basket-making, etc. (e.g., paper birch, slippery elm, witch hazel).

Criteria

- States will apply general criteria from the NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Refer to NRCS Conservation Practice Standard Multi-Story Cropping (Code 379) for guidance when cultivating plants under a forest canopy.
- Trees and shrubs will be selected for their cultural importance and their adaptability to site conditions.
- No plants on the Federal or state noxious weeds list shall be planted.
- Planting or seeding rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.
- Only viable, high-quality and adapted planting stock or seed will be used.

CONSERVATION STEWARDSHIP PROGRAM

- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

Participant will:

- ☐ Prior to implementation, prepare the planned acres of cultural tree and shrub establishment. Refer to NRCS Conservation Practice Standard Tree and Site Preparation (Code 490). (NRCS will provide technical assistance, as needed).
- ☐ Prior to implementation, select a combination of tree and shrub species selected for their cultural importance and their adaptability to site conditions.

Species	Cultural Significance and or Use

- ☐ Prior to implementation, select a planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance as needed.)

Task	Description	Planting Date
Planting Technique		
Arrangement and Spacing		

- ☐ Prior to implementation, determine types of tree and shrub protection that may be needed to prevent damage from plant and animal pests.
- ☐ During Implementation, protect the planting from plant and animal pests and fire.
- ☐ During implementation maintain all erosion control needed for the site.
- ☐ During implementation notify NRCS of any changes to verify they meet the enhancement criteria.
- ☐ After Implementation, notify NRCS that the planting and other measures are complete.

CONSERVATION STEWARDSHIP PROGRAM

NRCS Will:

- ☐ Prior to implementation, verify the enhancement is for acres that have been appropriately prepared for tree/shrub establishment. Refer to NRCS Conservation Practice Standard Tree and Site Preparation (Code 490).
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- ☐ Prior to implementation, verify no plants on the Federal or state noxious weeds list are included in the planning combination and that the cultural significance and use is documented.
- ☐ Prior to implementation verify that all species are native to the state and adaptable to the site.
- ☐ Prior to implementation, as needed, NRCS will provide Technical Assistance in:
  - o Planning Site Preparation meeting NRCS CPS Tree and Shrub/Site Preparation (Code 490).
  - o Selecting planting techniques, arrangement and spacing design, and planting date.
  - o Determine if or what type of tree and shrub protection would be beneficial for protecting against plant and animal pests and fire.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After Implementation, verify the planned trees/shrubs species have been established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pest and fire.
- ☐ Additional documentation as required by NRCS State Office.

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E612E

Cultural plantings

Conservation Practice 612: Tree/Shrub Establishment

Additional Criteria for Missouri

- Refer to CPS Tree/Shrub Establishment (612) and Tree and Shrub Guidance Document (612-MO-GD).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Livestock will be excluded from planting area
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.

United States Department of Agriculture

Conservation Enhancement Activity

E612G

CONSERVATION STEWARDSHIP PROGRAM

Tree/shrub planting for wildlife food

Conservation Practice 612: Tree/Shrub Establishment

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

RESOURCE CONCERN: Animals

PRACTICE LIFE SPAN: 15 years

Enhancement Description

Tree or shrub planting to enhance habitat for native wildlife. A minimum of five tree and shrub species will be used; they will be species that provide food and/or cover for identified wildlife species.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612) as listed below, and additional criteria as required by the NRCS State Office.
- Trees and shrubs will be selected for their importance in providing food and cover for wildlife, and their adaptability to site conditions. Refer to state lists.
- Select a minimum of five species of trees and shrubs, with at least one tree species and one shrub species (i.e., one tree and four shrubs; two trees and three shrubs; three trees and two shrubs; four trees and one shrub).
- Trees and shrubs will be planted on selected areas within any land use. Groupings of trees and shrubs will be designed for best growth, visual appeal, proximity to areas of wildlife use, or other locations depending on landowner objectives.
- Trees and shrubs will be planted in areas with adequate sunlight. If plantings are used in forested settings, plant in canopy openings. Planting rates will follow State NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612).

- No plants on the Federal or state noxious weeds list, or plants known to be aggressive in the local area, shall be planted.
- Planting or seeding rates will be adequate to accomplish the planned purpose for the site.
- Planting dates, and care in handling and planting of the seed, cuttings or seedlings will ensure that planted materials have an acceptable rate of survival for the intended purpose.
- Only viable, high-quality and adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Selection of planting technique and timing will be appropriate for the site and soil conditions.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Protect plantings from competition from invasive plants.
- Each site will be evaluated to determine if mulching, supplemental water or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.

Documentation and Implementation Requirements

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

- ☐ Prior to implementation, prepare the planned acres for tree or shrub establishment. Refer to NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490). (NRCS will provide technical assistance, as needed.)
- ☐ Prior to implementation, select a combination of tree and shrub for their importance in providing food for native wildlife, and their adaptability to site conditions. (NRCS will provide technical assistance, as needed.)

Species / Type	Number	Note wildlife habitat requirements/characteristic(s)

- ☐ Prior to implementation, select planting technique, arrangement and spacing design, and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

TASKS	Tree/Shrub _____	Shrub _____	Tree/Shrub _____	Tree/Shrub _____	Tree/Shrub _____
Planting Date					
Planting Technique					
Arrangement/Spacing					

- ☐ During implementation, use forms of erosion control as needed for the site. (NRCS will provide technical assistance, as needed.)
- ☐ During implementation, notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.
- ☐ During implementation, protect the planting from plant and animal pests and fire.

CONSERVATION STEWARDSHIP PROGRAM

- ☐ During implementation, maintain all erosion control needed for the site.

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.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
- ☐ Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement.
- ☐ Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- ☐ As needed, prior to implementation, NRCS will provide technical assistance:
  - o Planning site preparation meeting NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
  - o Selecting a combination of tree and shrub species.
  - o Selecting planting techniques, arrangement and spacing design, and timing appropriate for the target native wildlife, site and soil conditions.
  - o Planning the use of additional erosion control, as needed for the site.
  - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, verify the planned trees and shrub species were established to specifications developed for the site.
- ☐ After implementation, verify the planting is protected from pests and fire.
- ☐ After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E612G

Tree/shrub planting for wildlife food

Conservation Practice 612: Tree/Shrub Establishment

Additional Criteria for Missouri

- Refer to CPS Tree/Shrub Establishment (612) and Tree and Shrub Guidance Document (612-MO-GD).
- Prior to implementation, Tree/Shrub Establishment Job Sheet (JS-MO-612) will be developed for planned tree and shrub species.
- Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Plant only native tree and shrub species. Reference the associated ESD species list or the Conservation Tree and Shrub Suitability Groups (eFOTG Section II).
- Livestock will be excluded from planting area
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.

United States Department of Agriculture

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.).

- 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.

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.

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E643B

Restoration and management of rare or declining habitat

Conservation Practice 343: Restoration and Management of Rare and Declining Habitats

Additional Criteria for Missouri

- 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: *Conservation Cover (Code 327), Wildlife Habitat Planting (Code 420),* Fence (Code 382); Access Control (Code 472); Brush Management (Code 314); Herbaceous Weed Control (Code 315); and Tree and Shrub Establishment (Code 612).
- The monitoring plan will include annual pictures submitted by the participant to NRCS to monitor refugia area development and condition. NRCS will coordinate with the State Fish and Wildlife Agency or Wildlife TSP to review the annual documentation and evaluate if additional management is recommended to support the refugia area development.

Participant will:

- Prior to implementation, State Endangered, State Threatened, or State Sensitive plant species and/or plant communities should be identified using the Missouri Heritage Database and/or the 2020 Missouri Species and Communities of Conservation Concern Checklist located here: https://nature.mdc.mo.gov/discover-nature/file/missouri-species-and-communities-conservation-concern-checklist. Ecological Site Descriptions found in Section II/Soil Interpretations and

Reports/Ecological Site Assessment of the Missouri NRCS FOTG may also be used to determine plant communities and identify appropriate refugia locations that may be present, and to help select plant species that could be planted.

- Use the Restoration and Management of Rare or Declining Habitats (643) standard and job sheet(s), the Wildlife and Pollinator Plantings Job Sheet (JS-MO645 Wildlife and Pollinator Plantings), the Native Forb Information Sheet (IS-MO643 Native Forb), and other supporting documents posted on the Missouri NRCS FOTG as appropriate, to plan all enhancements including seedbed preparation, seeding methods, stand establishment, and maintenance.
- If seeding or relocating a sensitive species, use specifications for the appropriate natural community within the Wildlife and Pollinators Planting Job Sheet (JS-MO420) for criteria to be completed for site preparation and plant establishment.
- Provide at least a 60-foot buffer between refugia site and non-forested areas.
- Following consultation, appropriately labeled herbicides may be used to control invasive or noxious species in and around refugia using spot spraying application(s) only.
- During and after implementation, schedule any management activities outside of the primary nesting period (May 1 to July 15).

NRCS will:

- Prior to implementation, provide a map identifying the location and size of each refugia site.

Additional Documentation Requirements for Missouri

- Participant will provide for review, photographs as documentation of refugia area condition. The participant will take photos of the site within 2 weeks of the planting date (preferably taken on the day of planting) to demonstrate that proper seedbed prep was accomplished prior to planting. Photos will also be taken to demonstrate that establishment maintenance (mowing) has occurred. If no planting was needed, photos will be taken to document current conditions. For all following fiscal years of the contract, photos will be taken to document that the habitat areas are being maintained, protected, and are establishing. Photos will be preferably taken during the growing season showing blooming plants.

Total Amount Applied _____ac. Fiscal Year Completed_____

☐ Annual Pictures Provided (date of planting showing site prep and follow-up maintenance or current condition if no planting occurred)

Date (s) of Planting _____

Date (s) of Pictures Taken _____

☐ List of Management and/or Maintenance Activities with Dates Performed Provided (site prep/follow-up maintenance)

_____

_____

_____

United States Department of Agriculture

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.

- 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).

- 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.

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.

- ☐ 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E643C

Restore glade habitat to benefit threatened and endangered species and state species of concern

Conservation Practice 343: Restoration and Management of Rare and Declining Habitats

Additional Criteria for Missouri

- 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); *Conservation Cover (Code 327); Wildlife Habitat Planting (Code 420);* Fence (Code 382); Access Control (Code 472); Brush Management (Code 314); Herbaceous Weed Control (Code 315); *Tree and Shrub Establishment (Code 612)*; and Upland Wildlife Habitat Management (Code 645).
- Prescribed burns will be completed outside of the primary nesting period (May 1 to July 15).

Participant will:

- Glade restoration will only be applied on fields with ecological site map units designated as “glade” that have map units containing a major component tied to a glade ecological site comprising over 50 percent of the field.
- Prior to implementation, conduct a pre-treatment habitat assessment of the affected area using the Glade Community Model WHAG.

- Follow restoration methods as outlined in the information provided in the Glade Restoration Job Sheet (JS-MO643Glade) and Glade Information Sheet (IS-MO643Glade).
- If seeding is required, use specifications for Glade and Woodland Natural Community Restoration/Enhancement within the Wildlife and Pollinators Planting Job Sheet (JS-MO420) for criteria to be completed for site preparation and plant establishment. Also utilize provided information found in the Glade Restoration Job Sheet (JS-MO643Glade), Native Forb Information Sheet (IS-MO643 Native Forb), and job sheet for seeding produced in the Missouri Wildlife Seed Calculator to complete the seeding.
- Prior to implementation, acquire a written burn plan that has been approved by a qualified burn planner. The burn plan must meet enhancement criteria and all criteria included in Prescribed Burn Plan Job Sheet (JS-Agron-18).
- After implementation, conduct a post-treatment habitat assessment using the Glade Community Model WHAG to perform the habitat assessment. The score must result in a 0.5 or greater.

NRCS will:

- Prior to implementation, complete and provide a Glade Restoration Job Sheet (JS-MO643Glade) and Glade Information Sheet (IS-MO643Glade). Other documents should be completed and provided, as applicable, including the Prescribed Burn Plan Job Sheet (JS-AGRON-18), Wildlife and Pollinator Plantings Job Sheet (JS-MO420), Native Forb Information Sheet (IS-MO643 Native Forb), and a job sheet for seeding produced in the Missouri Wildlife Seed Calculator.
- After implementation, complete (or request from participant) a Post-burn Evaluation found in the Prescribed Burn Plan.

Additional Documentation Requirements for Missouri

- Participant will provide records, including pictures, detailing management practices implemented and the date practices were completed.

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

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.

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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements

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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E645B

Manage existing shrub thickets to provide adequate shelter for wildlife

Conservation Practice 645: Upland Wildlife Habitat Management

Additional Criteria for Missouri

- Refer to the Quail Covey Headquarters Job sheet (JS-MO645) for detailed management recommendations for existing shrub thickets. Optimum shrub thickets are 3 feet to 12 feet in height.
- Cut trees and shrubs if they are greater than 12 feet tall. If native shrubs are greater than 12 feet tall, cut them off at the ground level and do not treat the shrub stumps. Treat all cut stumps of undesirable trees or shrubs (except cedars) with an approved herbicide to prevent regrowth.
- Prior to cutting trees or tree/shrub limbs, treat all existing grass with an approved herbicide to remove underlying grasses in the area the trees/limbs will be placed within or adjacent to the shrub thicket. Application of a grass-specific herbicide may be desired. Retreat all invading grasses every 2 - 5 years.
- For hinge-cutting trees, follow specifications within the Edge Feathering Job Sheet (JS-MO649).
- If pruning of shrubs or trees is necessary, refer to the Tree/Shrub Pruning Job sheet (JS-MO660).
- If prescribed fire is used to manage the existing shrub thicket, a written burn plan that has been approved by a qualified burn planner and meets all criteria included in Prescribed Burn Plan Job Sheet (JS-Agron-18) must be obtained prior to the burn. Burning will not be completed during the primary nesting season (May 1 – July 15).
- Prior to implementation, assess habitat condition using the Cropland Community Model, the Early Successional Vegetation Community Model, or the Prairie and Grassland Community Model (for Edge species) WHAG, as appropriate for the surrounding landscape.

- If applied on Forest land, prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.

Participant will:

- Provide digital pictures of existing shrub thicket before and after applied management.
- If herbicide is applied to remove underlying grasses, provide digital pictures of the underlying vegetation before and approximately 2 weeks following herbicide application.

United States Department of Agriculture

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

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.

CONSERVATION STEWARDSHIP PROGRAM

- 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E645C

Edge feathering for wildlife cover

Conservation Practice 645: Upland Wildlife Habitat Management

Additional Criteria for Missouri

- Refer to the Edge Feathering Job Sheet (JS-MO649) for implementation requirements.
- Establish at least 0.1 to 1.0 acre of edge feathering per 5 to 40 acres of wildlife friendly habitat.
- If prescribed fire is applied, a written burn plan that has been approved by a qualified burn planner and meets all criteria included in Prescribed Burn Plan Job Sheet (JS-Agron-18) must be obtained prior to the burn. Burning will not be completed during the primary nesting season (May 1 – July 15).

United States Department of Agriculture

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.

- 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.

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:
  - o Crops grown and the harvest date for the crops grown on the applicable acres;
  - o Date/time the water control structure was closed;
  - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
  - o Date/time when the water control structures were opened
  - o Digital photographs documenting the condition of the structures and the habitat provided
- ☐ 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

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 the 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 completed 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E646A

Close structures to capture and retain rainfall to provide winter habitat for waterfowl and other wading birds

Conservation Practice 646: Shallow Water Development and Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E646A the following additional criteria apply in Missouri:
    - The wildlife habitat management plan will consist of a Shallow Water Development and Management Job Sheet JS-17 or similar.
    - Water control structures will be closed by December 1 (or within 2 days of harvest) and remain closed through February 15.
    - Reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition, and burning can destroy grain and eliminate residue that provides food and substrate for aquatic organisms.
    - Use a Missouri Flooded Cropfield Community Model WHAG.

United States Department of Agriculture

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.

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.

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:
  - o Crops grown and the harvest date for the crops grown on the applicable acres;
  - o Date/time the water control structure was closed;
  - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
  - o Date/time when the water control structures were opened
  - o Digital photographs documenting the condition of the structures and the habitat provided.
- ☐ 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

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E646B

Extend retention of captured rainfall for migratory waterfowl and wading bird late winter habitat

Conservation Practice 646: Shallow Water Development and Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E646B the following additional criteria apply in Missouri:
    - The wildlife habitat management plan will consist of a Shallow Water Development and Management Job Sheet JS-17 or similar.
    - Water control structures will be closed by December 1 (or within 2 days of harvest) and remain closed through March 15. Maintain water depths over 50% or more of the area through March 15.
    - Reduce or eliminate tillage or residue manipulation as much as possible following harvest. Tillage buries waste grain and speeds decomposition, and burning can destroy grain and eliminate residue that provides food and substrate for aquatic organisms.
    - Use a Missouri Flooded Cropfield Community Model WHAG.

United States Department of Agriculture

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).

- 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:
  - o Crops grown and the harvest date for the crops grown on the applicable acres;
  - o Date/time the water control structure was closed;
  - o Date/time of each field visit and observed water levels or percent holding capacity and average water depths;
  - o Date/time when the water control structures were opened;
  - o Digital photographs documenting the condition of the structures and the habitat provided.
- ☐ 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

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E646C

Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat

Conservation Practice 646: Shallow Water Development and Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E646C the following additional criteria apply in Missouri:
    - This enhancement can be applied to cropland acres with leveed fields capable of holding 1 - 4 inches of water.
    - The wildlife habitat management plan will consist of a Shallow Water Development and Management Job Sheet JS-17 or similar.
    - Water control structures will be closed by December 1 or within 2 days after harvest. Catch and hold all available precipitation until July 31. Consider flooding the field slowly over a 2 to 3 week period.
    - Manipulate vegetation on the site, if after late spring to early summer (after June 15), the site becomes dry with emergent vegetation covering 50 percent or more, at a height of 6 inches or more.
    - Maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.
    - Use a Missouri Flooded Cropfield Community Model WHAG.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E646C the following additional documentation requirements apply in Missouri:
    - The participant will maintain a field log that also includes the:
        - Dates the water control structure(s) are closed and opened.
        - Date of field/vegetation manipulation and details including method used, extent of, and pattern used.
        - Digital pictures of vegetation before and after manipulation

United States Department of Agriculture

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).

- 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.

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 = _____**

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E646D

Manipulate vegetation and maintain closed structures for shorebird late summer habitat

Conservation Practice 646: Shallow Water Development and Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E646D the following additional criteria apply in Missouri:
    - This enhancement can be applied to cropland acres with leveed fields capable of holding 1 - 4 inches of water.
    - The wildlife habitat management plan will consist of a Shallow Water Development and Management Job Sheet JS-17 or similar.
    - Water control structures will be closed by December 1 (or within 2 days after harvest). Catch and hold all available precipitation until August 31. Consider flooding the field slowly over a 2 to 3 week period.
    - Maintain water levels between 1 – 4 inches in depth over 50% or more of the area. Leave some mud flats exposed.
    - Use a Missouri Flooded Cropfield Community Model WHAG.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E646D the following additional documentation requirements apply in Missouri:
    - The participant will maintain a field log that also includes the:
        - Dates the water control structure(s) are closed and opened.
        - Date of field/vegetation manipulation and details including method used, extent of, and pattern used.
        - Digital pictures of vegetation before and after manipulation

United States Department of Agriculture

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: 1 year

Enhancement Description:

Harvested and idled agricultural lands, notably those occurring within rice rotations, contain high densities of residual (i.e., waste) grain and natural seeds following harvest. Seed densities in harvested rice fields may rival those documented in intensively managed moist-soil units, especially in the Gulf Coast and Central Valley of California. When flooded to shallow depths during fall and winter, these agricultural fields provide ideal foraging habitat for myriad species of waterfowl and wading birds. In addition, flooded conditions promote establishment of aquatic invertebrate populations, thus providing protein-rich food sources for shorebirds as well as waterfowl and wading birds. In many cases, light manipulation of dense vegetation is needed to improve the accessibility of food resources to waterfowl, wading birds, and shorebirds.

Criteria:

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.

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.

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E647A

Manipulate vegetation on fields with captured rainfall for waterfowl & wading bird winter habitat

Conservation Practice 647: Early Successional Habitat Development\Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E647A the following additional criteria apply in Missouri:
    - The wildlife habitat management plan will consist of a Shallow Water Development and Management Job Sheet JS-17 or similar.
    - Lightly disk (2-4 inches deep), bush hog, or roll 50-80% of the area within 7 days following harvest or by December 1.
    - Disk, bush hog, or roll in strips 30-75 feet wide, or in a mosaic, or other irregular pattern.
    - Use a Missouri Flooded Cropfield Community Model WHAG.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E647A the following additional documentation requirements apply in Missouri:

- The participant will maintain a field log that also includes the:
  - Dates the water control structure(s) are closed and opened
  - Dates of field visits and water levels observed
  - Dates, type, extent, and pattern used for all habitat management
  - Digital pictures of vegetation before and after manipulation

United States Department of Agriculture

Conservation Enhancement Activity

E647B

CONSERVATION STEWARDSHIP PROGRAM

Provide early successional shorebird habitat between first crop and ratoon crop

Conservation Practice 647: Early Successional Habitat Development /Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Animals

PRACTICE LIFE SPAN: 1 year

Enhancement Description:

Many declining suites of wildlife species rely on early successional habitats for at least part of their life cycle needs. Migratory shorebird species in particular rely on open, moist soil or shallowly flooded conditions for foraging and security. Rice farms support many migratory and resident water bird species. The first rice crop harvest often coincides with the arrival of early migrating shorebirds. This time of year, is also the highest rainfall months. If standing rice stubble from the first crop is rolled to push above-ground stalks level with the soil surface, the first component of this type of habitat is met. When moisture is added to this situation, short-term habitat is available until the ratoon crop initiates growth to a height beyond that which would provide benefit to the early successional species.

Criteria:

This enhancement applies to crop land use acres with leveed fields where a ratoon crop is grown.

- Develop a wildlife habitat management plan for the suite of species targeted.

- Immediately after first crop rice harvest, the standing rice stubble is forced to the soil surface with a rolling implement.
- Close water control structure affecting the planned area no later than two days after harvest.
- Capture ephemeral moisture and/or encouraged moist soil conditions.
- A Wildlife Habitat Evaluation Guide (WHEG) specific to shallow water habitat on cropland must be used to show that implementation of the Enhancement will improve wildlife habitat value from fair (planning criteria = 0.5) to good (planning criteria greater than 0.5 and less than or equal to 0.6) or from good to very good (planning criteria greater than 0.6).

Note: This Enhancement may be grouped with 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 and E647A – Manipulate vegetation on fields with captured rainfall for waterfowl and wading bird winter habitat.

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 where a ratoon crop is grown.
- ☐ 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.

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E647B

Provide early successional shorebird habitat between first crop and ratoon crop

Conservation Practice 647: Early Successional Habitat Development\Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E647B the following additional criteria apply in Missouri:
    - The wildlife habitat management plan will consist of a Shallow Water Development and Management Job Sheet JS-17 or similar.
    - Consider reflooding area slowly over a 2-3 week period by incrementally installing water control structure boards.
    - Maintain water levels between 6 and 18 inches in depth, with an average depth of 6 inches over 50% or more of the area.
    - Use a Missouri Flooded Cropfield Community Model WHAG.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E647B the following additional documentation requirements apply in Missouri:

- The participant will maintain a field log that also includes the:
  - Dates of field visits and water levels observed.
  - Dates the water control structure(s) are closed.
  - Digital pictures of vegetation before and after manipulation

United States Department of Agriculture

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.

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:
  - 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 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

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

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E647C

Maintain most soil vegetation on cropland edges to enhance waterfowl and shorebird habitat

Conservation Practice 647: Early Successional Habitat Development\Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E647C the following additional criteria apply in Missouri:
    - The wildlife habitat management plan will consist of a Shallow Water Development and Management Job Sheet JS-17, including moist soil management recommendations and moist soil species which will be emphasized to establish.
    - Where possible, select areas located next to usable shrubby cover or native grasses.
    - Mowing is not allowed as a stand-alone practice; it can only be used when in combination with disking, burning, or rolling.
    - Control invasive species on a spot basis, when possible. Discontinue weed management on the selected area during the growing season. Invasive plant species, such as reed canary grass, which prevent establishment/production of desirable plants, should be controlled.
    - Close structures to hold water after harvest of adjacent cropland by November 1. Consider reflooding the area slowly over a 2-3 week period by incrementally installing water control structure boards. Maintaining water

- levels between 6 to 18 inches in depth is recommended, with an average depth of 6 inches over 50% or more of the area.
- Use a Missouri Flooded Cropfield Community Model WHAG.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E647C the following additional documentation requirements apply in Missouri:
  - The participant will maintain a field log that also includes a:
    - Map showing location of the areas established in natural moist soil vegetation.
    - Dates the water control structure(s) are closed.
    - Digital pictures should also include acreage depicting winter flooding.

United States Department of Agriculture

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.

- 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).

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:
  - o Type of crop(s) grown.
  - o Harvest date of 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, 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.

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E647D

Establish and maintain early successional habitat in ditches and bank borders

Conservation Practice 647: Early Successional Habitat Development\Management

Additional Criteria for Missouri

- In addition to the criteria specified in the National job sheet E647D the following additional criteria apply in Missouri:
    - The wildlife habitat management plan will consist of a Disking for Early Successional Habitat Job Sheet JS-MO647 and/or a Herbicide Application for Plant Succession Management Job Sheet JS-MO647.
    - Control existing non-native grasses, such as tall fescue and reed canary grass, with an approved herbicide.
    - Mowing is not allowed as a stand-alone practice; it can only be used when in combination with disking or herbicide application.
    - Disk only between July 16 and March 31.
    - Herbicides should be applied to suppress undesirable cool-season grasses from March 15 to April 30 or September 15 to October 31.
    - No management may be applied during the primary nesting season from May 1 to July 15.
    - Use a Missouri Early Successional Habitat Community Model WHAG.

Additional Documentation Requirements for Missouri

- In addition to the documentation requirements specified in the National job sheet E647D the following additional documentation requirements apply in Missouri:
    - The participant will maintain a field log that also includes a:
        - Map depicting location and dimensions of installed or revegetated ditch/bank borders
        - Digital photographs of the habitat before and after management treatments

United States Department of Agriculture

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

- Use smaller and lighter equipment, track equipment, low PSI tires, and lighter loads. Where appropriate, use mules, draft horses or other animals for moving harvested trees
- Restore heavily compacted areas (e.g., by sub-soiling or other mechanical method)

o Limit impacts of roads and landings

- Avoid disturbing natural drainage channels (e.g., design road locations to minimize stream crossings and diversions)
- Roads and landings occupy 5% or less of total wooded acreage
- Establish cover on roads and landings that are not in use

o Limit soil disturbance and control erosion

- Avoid disturbing forest litter and the soil surface
- Protect roads 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

o Maintain favorable conditions for forest growth

- Control the amount of road use, and off-road travel, to prevent erosion, compaction, and disturbance of the soil surface
- Establish cover on any disturbed areas
- Monitor the forest area for signs of insect damage, tree diseases, invasive plants, or other impacts on forest growth and health

o Retain and enhance carbon storage to support soil ecologic functions

- Follow stocking guidelines to maintain tree canopy cover (i.e., between the A and B lines of stocking guides at a minimum; preferably closer to the A line). See the stocking chart shown below.
- Add woody material to the soil by girdling or cutting non-merchantable trees or trees of undesired species
- Use extended rotations to keep carbon on the site for a longer period

CONSERVATION STEWARDSHIP PROGRAM

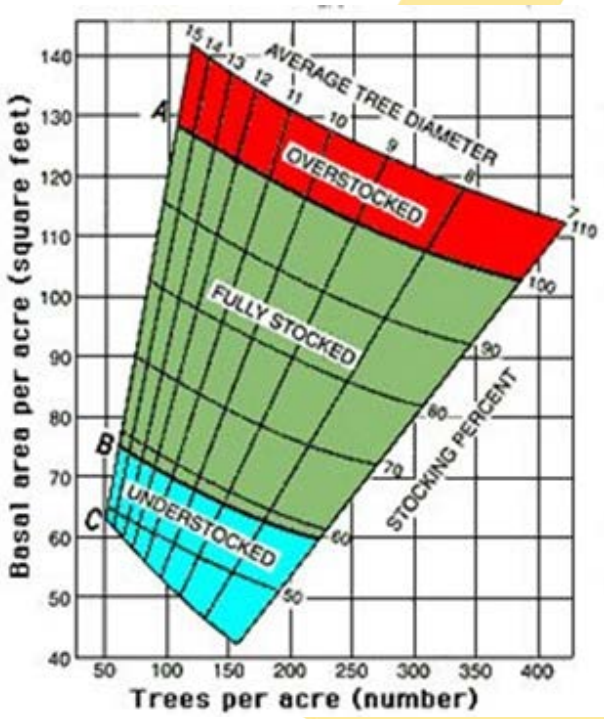
- Retain fallen trees, branches, snags, downed tops and other unharvested materials for ground cover, nutrient recycling, and organic matter retention, in quantities as specified below, or by the NRCS State Office.
  - For western conifer forests, maintain coarse woody residue:
    - that is greater 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.

- 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.

- ☐ 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.
  - o Prior to implementation, provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement.
  - o Forest Stand Improvement (Code 666)
  - o Integrated Pest Management (Code 595)
  - o Forest Trails and Landings (Code 655)
  - o Access Road (Code 560)
- ☐ As needed, prior to implementation, NRCS will provide technical assistance in:
    - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and will discuss the details with the participant.
- ☐ 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.

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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E666A

Maintaining and improving forest soil quality

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- If soil amendments are required, use appropriate materials and equipment to apply to accessible acres (such as recently harvest sites). For inaccessible stands (either due to tree cover or remoteness) use FSI to add slash to the forest floor. Slash will ultimately be converted to organic matter and soil available nutrients. An updated Forest Stand Improvement Job Sheet (JS-MO-666) will be developed targeting B-level stocking to achieve adequate slash levels. Among removals, trees < 10 inches DBH will be felled and tops lopped to no higher than 5 feet above ground.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- Exclude livestock from the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

USDA United States Department of Agriculture

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.

Criteria:

CONSERVATION STEWARDSHIP PROGRAM

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 (Code315).
- 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.

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

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:
  - o Minimize risks of insect and disease outbreaks.
  - o Include recommended practices for managing understory vegetation to favor moisture infiltration.
  - o The FMP will also include recommended practices for managing understory vegetation to favor wildlife cover and shelter.
  - o 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:
  - o Brush Management (Code 314)
  - o Forest Trails and Landings (Code 655)
  - o Herbaceous Weed Control (Code 315)
  - o Integrated Pest Management (Code 595)
  - o Woody Residue Treatment (Code 384)
  - o Prescribed Burning (Code 338)
- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ Prior to implementation, work with a professional forester who will mark trees and groups of trees to be removed 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:
  - o Trees are removed, killed, or retained to achieve all planned purposes and landowner objectives.
  - o The desired spacing, density, size-class distribution, number of trees, and amount of understory is achieved.
  - o The operation avoids or minimizes damage to desirable vegetation.
- ☐ During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- ☐ During implementation, reduce stand stocking to correspond with the B-line of an appropriate stocking chart, retaining trees with larger, healthy crowns and undamaged trunks. If tree removal is not an option, reduce density by killing selected trees through girdling and/or chemically treatments.
- ☐ During implementation, control undesirable competing vegetation using appropriate methods for the tree species and site conditions. If prescribed burning will be used, work with NRCS and a professional forester or biologist to obtain a state approved prescribed burn plan. If using chemical methods, follow application and timing recommendations from an approved source.
- ☐ During implementation, limit the size of debris piles to minimize wildfire hazards.
- ☐ During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, take digital photos showing representative post-treatment conditions.
- ☐ After implementation, notify NRCS that the work has been completed and make treatment documentation records available for NRCS review and certification.

NRCS will:

- ☐ Prior to implementation, 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

- 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)

- ☐ 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E666D

Forest management to enhance understory vegetation

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) and/or Brush Management Job Sheet (JS-MO-314) will be developed for target woody vegetation.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666E

CONSERVATION STEWARDSHIP PROGRAM

Reduce height of the forest understory to limit wildfire risk

Conservation Practice 666: Forest Stand Improvement

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description:

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

Criteria:

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

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

CONSERVATION STEWARDSHIP PROGRAM

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

CONSERVATION STEWARDSHIP PROGRAM

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

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

Participant will:

☐ Prior to implementation, work with a professional forester to develop or update a forestry management plan for the property.

☐ Prior to implementation, work with a professional forester to include **current** species, cover type, and size class distribution for stands to be treated in the plan.

☐ Prior to implementation, work with a professional forester to include **current** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated in the plan.

☐ Prior to implementation, work with a professional forester to include **desired** species, cover type, and size class distribution for stands to be treated in the plan.

☐ Prior to implementation, work with a professional forester to include **desired** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated in the plan.

☐ Prior to implementation, work with a professional forester to include in the updated or developed plan to identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.

☐ Prior to implementation, work with a professional forester using available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.

☐ Prior to implementation, work with professional forester and NRCS to delineate on a map the treatment areas and dates.

☐ Prior to implementation, discuss with professional forester or NRCS if NRCS Conservation Practice Standard Forest Trails and Landings (Code 655) will be necessary for access or to reduce erosion from vehicles/equipment.

☐ Prior to implementation, discuss with professional forester and NRCS if NRCS Conservation Practice Standard Woody Residue Treatment (Code 384) to appropriately treat slash and debris.

☐ Prior to implementation, discuss with professional forester and NRCS if NRCS Conservation Practice Standard Prescribed Burning (Code 338) to appropriately treat slash and debris.

☐ During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.

CONSERVATION STEWARDSHIP PROGRAM

☐ During implementation, keep evidence to support the treatment activities were completed using representative photos. Location of representative photos must be indicated on the map delineating treated areas.

☐ After implementation, notify NRCS that treatment has been completed and submit pictures and map to support this.

NRCS will:

☐ Prior to implementation, provide and discuss with participant, as needed, NRCS Conservation Practice Standards Forest Trails and Landings (Code 655), Woody Residue Treatment (Code 384), and Prescribed Burning (Code 338).

☐ Prior to Implementation, verify that participant plan has been developed or updated by a professional forester.

☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester to include **current** species, cover type, and size class distribution for stands to be treated.

☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester to include **current** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated.

☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and includes **desired** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated.

☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and includes **desired** crop trees per acre, basal area per acre, trees per acre, between-tree spacing, or by any other appropriate and professionally accepted density or stocking protocol for stands to be treated.

☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and identifies and retains preferred tree and understory species to achieve all planned purposes and landowner objectives to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.

☐ Prior to implementation, verify that participant plan has been developed or updated by a professional forester and uses available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained to get from **current to desired** conditions for the stands to be treated. This would be part the silviculture prescription.

CONSERVATION STEWARDSHIP PROGRAM

☐ Prior to implementation, assist the landowner, as needed, to delineate on a map the treatment areas and dates of treatment.

☐ During Implementation, verify any planned changes in plan will meet the enhancement criteria.

☐ After Implementation, verify that the treatment has been completed and meets enhancement criteria.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E666E

Reduce height of the forest understory to limit wildfire risk

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) and/or Brush Management Job Sheet (JS-MO-314) will be developed for target woody vegetation.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

United States Department of Agriculture

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).

CONSERVATION STEWARDSHIP PROGRAM

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

Documentation and Implementation Requirements:

CONSERVATION STEWARDSHIP PROGRAM

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.
  - o Brush Management (Code 314)
  - o Forest Stand Improvement (Code 666)
  - o Forest Trails and Landings (Code 655)
  - o Herbaceous Weed Control (Code 315)
  - o Integrated Pest Management (Code 595)
  - o Woody Residue Treatment (Code 384)
  - o 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E666F

Reduce forest stand density to create open stand structure

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) will be developed.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

United States Department of Agriculture

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: Air, Soil

ENHANCEMENT LIFE SPAN: 10 Years

Enhancement Description

Use forest management techniques to maintain and increase on-site carbon storage. These include, but are not limited to, applying uneven-aged management, using longer rotations, retaining cavity/den trees, snags, and down woody debris, and protecting or increasing soil organic material.

Criteria

- States will apply general criteria from the NRCS National Conservation Practice Standard Forest Stand Improvement (Code 666) as listed below, and additional criteria as required by the NRCS State Office.
- Apply all of the following activities:
  - 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., shelterwood, seed-tree) that encourage 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.
- Maintain canopy cover to shade the forest floor and avoid hastening decomposition.

- 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 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.
  - 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, understand that this enhancement only includes the development of a new or updated Forest Management Plan (FMP) that may reflect a change in management objectives. If the forest stand needs a treatment, it will be planned separately after the FMP is completed.
- ☐ Prior to implementation, review NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) that contains information needed to meet criteria for this enhancement.
- ☐ Prior to implementation, develop an understanding of the management that is required to increase carbon storage appropriate for the resource setting to include the follow activities (Request NRCS technical assistance, as needed.):
  - o Transition from even-aged to uneven-aged management.
  - o Retaining dead wood, and selecting trees or clumps of trees that are intended to be permanently left on the site.
  - o Use regeneration methods (e.g., shelterwood, seed-tree) that encourage retention of mature trees during the period when advanced regeneration develops.
  - o Adopt techniques for maintaining and/or improving soil quality, specifically retention of organic carbon.
  - o Maintain canopy cover to shade the forest floor and avoid hastening decomposition.
- ☐ Prior to implementation, for Forest Lands, work with professional forester to prepare or update a current FMP that includes activities required to implement this enhancement. **NRCS State Office will determine if a FMP will be required for Associated Ag Land or Farmstead settings.** (Request NRCS technical assistance, as needed.)
- ☐ Prior to implementation, as a part of developing or updating a FMP, arrange to have a professional forester or wildlife specialist:
  - o identify and map areas, selected trees, or clumps of leave trees that can serve as wildlife habitat and that are intended to be left on site throughout their lifespan.
  - o Describe amounts and condition of standing snags and fallen woody debris with 6” or larger basal diameter.
  - o Identify and map trails or roads that can be planned for closure.

- ☐ Prior to implementation, when stand treatment is needed, plan NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) with NRCS and a professional forester. All of the following implementation requirements apply to the application of treatment, which may occur in the future.
- ☐ Prior to implementation, recognize that other NRCS Conservation Practice Standards may be needed to apply this enhancement. These may include:
  - o Road/Trial/Landing Closure and Treatment (Code 654)
  - o Woody Residue Treatment (Code 384)
- ☐ Prior to implementation, acquire all necessary approvals and permits (i.e. local, state, or federal, as applicable).
- ☐ During implementation, follow state-approved Forestry Best Management Practices (BMPs) to protect streams, water quality, and minimize soil loss.
- ☐ During implementation, follow FMP guidelines, criteria in NRCS Conservation Practice Standard Forest Stand Improvement (Code 666), and in specifications provided by NRCS, to ensure that:
  - o overstory tree and understory species are retained to achieve all planned purposes and landowner objectives.
  - o establish required spacing, density, size-class distribution, number of trees, and amount of understory species to be retained.
  - o schedule treatments to maintain the stand in a fully stocked condition based on appropriate stocking guide.
  - o avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.
- ☐ During implementation, as needed, evaluate and review with NRCS any planned changes to verify they meet the enhancement criteria.
- ☐ After implementation, ensure that retained leave areas are properly protected.
- ☐ After implementation, update the FMP to document treatment acres, completion dates and methods, and document representative treatments with digital photos.
- ☐ After implementation, notify NRCS that the work has been completed and make treatment documentation available for NRCS review and certification.

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ Prior to implementation, provide assistance with interpretation of a current or updated FMP for sites where this enhancement will be applied.
- ☐ Prior to implementation, provide and explain the following NRCS Conservation Practice Standards (CPSs) as they relate to implementing this enhancement:
  - o Forest Stand Improvement (Code 666).
  - o Woody Residue Treatment (Code 384).
- ☐ As needed, prior to implementation, NRCS will provide technical assistance in:
  - o Guiding the proper sequence and timing of planned FMP treatment activities to meet requirements to maintain and increase on-site carbon storage.
  - o Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- ☐ Prior to implementation, 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.
- ☐ During implementation, 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E666H

Increase on-site carbon storage

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) will be developed.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

United States Department of Agriculture

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.

- 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

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):
    - o Forest Stand Improvement (Code 666)
    - o Integrated Pest Management (Code 595)
    - o Forest Trails and Landings (Code 655)
    - o Access Road (Code 560)
    - o Woody Residue Treatment (Code 384)
    - o 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E666I

Crop tree management for mast production

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) will be developed.
- During implementation, select 20-75 crop trees per acre as recommended in the FMP based on the following criteria (see Crop Tree Release Information Sheet [IS-MO-666ctr] and for additional guidance.):
    - Dominant or co-dominant canopy tree
    - Desired species for mast production
    - Healthy crown
    - Minimal epicormic branching
    - Good form
    - Adapted to site
- See Crop Tree Release Information Sheet (IS-MO-666ctr) for additional guidance.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
  For information on state-approved Forestry Best Management Practices to protect water quality refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

United States Department of Agriculture

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 (i.e., a regeneration cut). After a regeneration cut, oaks in the seedling and sapling stages are often out-competed by invasive brush and undesirable tree and shrub species. 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 controls such as prescribed burning, chemical, and mechanical treatments that may be needed. 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 regeneration and recruitment.

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 have sufficient existing advanced oak regeneration in the seedling and/or sapling stages. This enhancement is not appropriate when stands have reached the poletimber size class. The stands must also have evidence that the advanced oak regeneration is not "free to grow" because of competing species.

- 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).

- Forest stands lacking sufficient oak regeneration with no surrounding seed-producing oaks may need an enrichment planting of oak. Use NRCS Conservation Practice Standard Tree and Shrub Establishment (Code 612). Prescribed burning may not be appropriate where trees have been recently planted.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

- ☐ 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 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 protect regenerating oak trees from 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 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)

CONSERVATION STEWARDSHIP PROGRAM

- Integrated Pest Management (Code 595)
- Prescribed Burning (Code 338)
- Brush Management (Code 314)
- Herbaceous Weed Control (Code 315)
- Tree and Shrub Establishment (Code 612)

☐ As needed, prior to implementation, NRCS will provide technical assistance by:

- 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 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

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E666J

Facilitating oak forest regeneration

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) will be developed.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

USDA United States Department of Agriculture

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: Plants, Animals

PRACTICE LIFE SPAN: 10 Years

Enhancement Description:

Forest stand improvement that creates patch openings. Size, shape, and arrangement of patches will be based on natural features, and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically and by forest type, and by tree species desired from natural regeneration. The treatment will create diversity in stand composition and structure, increase pest resistance, and enhance wildlife food availability. Openings may provide regeneration sites and restore natural plant communities, and achieve or maintain a desired understory plant community for wildlife habitat. **Criteria:**

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

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- This enhancement may be applied only to forested acres that have an "acceptable growing stock" level. For tree species with stocking charts, this is at least the B line, the lowest level of a fully stocked stand.
- The size of patches to be treated for wildlife can vary from 1 to 10 acres, be distributed throughout the forest and cannot total more than 30% of the acres meeting the "acceptable growing stock" level.
- Size of patches to be treated for degraded plant condition can vary from 1 to 10 acres, be distributed throughout the forest and cannot total more than 50 percent of the acres meeting the "acceptable growing stock" level.

CONSERVATION STEWARDSHIP PROGRAM

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

CONSERVATION STEWARDSHIP PROGRAM

- 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.

CONSERVATION STEWARDSHIP PROGRAM

Documentation and Implementation Requirements:

Participant will:

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

NRCS will:

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

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

CONSERVATION STEWARDSHIP PROGRAM

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

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666K

Creating structural diversity with patch openings

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) will be developed.
- Patch openings will be placed in locations to facilitate the regeneration of desirable native species based on the associated ESD species list. Priority should be placed on oaks, hickories, and shortleaf pine. Non-native invasive species must be controlled.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

United States Department of Agriculture

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.

- 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.
- 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:
    - o Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.).
    - o Identify areas of 0.25 to 1 acre in size that will have group selection.
    - o Identify areas of 1-3 acres in size that will be clear cut.
    - o Specify how undesirable trees and shrubs will be cut or killed.

Stand #	Treatment Option

- ☐ Invasive species will be treated prior to implementation or concurrently with cut.

- ☐ 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.
  - o Integrated Pest Management (Code 595)
  - o Woody Residue Treatment (Code 384)
  - o Prescribed Burning (Code 338)
  - o 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:
  - o Identify tree species (crop trees) that meet objectives for the stand (timber, wildlife, visual quality, etc.).
  - o Identify areas of 0.25 to 1 acre in size that will have group selection.
  - o Identify areas of 1-3 acres in size that will be clear cut.
- ☐ 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

USDA United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666L

Forest stand improvement to rehabilitate degraded hardwood stands

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) will be developed.
- This enhancement is only applicable for stands that require crop tree release *and* openings ranging from 0.25 to 3 acres in size.
    - During implementation, where crop tree release will be applied, select 20-75 crop trees per acre as recommended in the FMP based on the following criteria (see Crop Tree Release Information Sheet [IS-MO-666ctr] and for additional guidance.:
        - Dominant or co-dominant canopy tree
        - Desired species for mast production
        - Healthy crown
        - Minimal epicormic branching
        - Good form
        - Adapted to site
    - During implementation, where no crop trees are present, kill all trees on areas 0.25 acre up to 3 acres in size.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.

- Prior to and following implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). Use the Forest Community WHAG or the Savanna and Open Woodland Community Model WHAG as appropriate.
- For information on state-approved Forestry Best Management Practices to protect water quality refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

United States Department of Agriculture

CONSERVATION ENHANCEMENT ACTIVITY

E666O

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, forest stand structural diversity, and coarse woody debris on the forest floor, to provide cover/shelter for native wildlife species.

Criteria

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

- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

- When determining which trees will be killed for snag creation, and/or used to create cavities/dens, consider effects on the remaining stand.
  - Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
  - Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained.
  - Refer to criteria in NRCS 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:

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

Desired Wildlife Species

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

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

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

CONSERVATION STEWARDSHIP PROGRAM

NRCS will:

- ☐ 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)
- ☐ Prior to implementation, assist participant in determining which wildlife species will benefit from snags, den trees, coarse woody debris, and/or brush piles for shelter, cover, nest sites, and/or rearing sites.
- ☐ Prior to implementation, assist the landowners to delineate on a map the acres that the enhancement would be applied.
  - ☐ Prior to implementation, assist the participant to determine the number of snags (by size class), den trees, coarse woody debris, and/or brush piles exist on the acres delineated by the enhancement. Determine the desired number, with the difference being the # of snags, den trees, coarse woody debris, and/or brush piles need to be created to meet criteria of the enhancement.
- ☐ During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
  - ☐ After implementation, verify that the number of snags, den trees, coarse woody debris, and/or brush piles have been created.

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date

United States Department of Agriculture

Missouri Supplement to Conservation Enhancement Activity

CONSERVATION STEWARDSHIP PROGRAM

E666O

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

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) will be developed.
- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

USDA United States Department of Agriculture

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

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

United States Department of Agriculture

MISSOURI SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E666P

Summer roosting habitat for native forest-dwelling bat species

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for Missouri

- Prior to implementation, have a current or updated Forest Management Plan (FMP) that includes activities required to implement this enhancement. The FMP along with any other required documentation meets the requirements of a wildlife habitat plan.
- Prior to implementation, Forest Stand Improvement Job Sheet (JS-MO-666) will be developed.
- Utilize either the Forest Community or Savanna and Open Woodlands WHAG (WHEG). Planned score must be at least 0.5.
- During implementation, establish roost trees by retaining and managing existing live trees with loose or exfoliating bark (such as shagbark and shellbark hickory or white oak) or trees with cracks, crevices and broken tops. Retain/manage at least:
    - Two (2) trees greater than 19 inches diameter at breast height (DBH).
    - Six (6) trees 10 – 19 inches DBH.
- During implementation, these selected trees must be sited where sunlight strikes the bark for at least part of a day. Areas such as forest openings and forest edges provide this attribute. If sunlight does not strike the bark, then all trees within 15 feet of the canopy must be killed or removed. Removal of trees (i.e. cutting down) must observe "no-cut" periods and other guidelines set out in the Bat Habitat Conservation Priorities in Missouri (eFOTG Section II).
- During implementation, if the size/number of live tree species meeting specification above is not available, then snags must be created at the following rate per acre.
    - Two (2) snag trees >19 inches DBH
    - Six (6) snag trees 10-19 inches DBH
    - Two (2) snag trees <10 inches DBH

- During implementation, snag trees must be sited where sunlight strikes the bark for at least part of a day. Areas such as forest openings and forest edges provide this attribute. If sunlight does not strike the bark, then all trees within 15 feet of the canopy must be killed or removed. Removal of trees (i.e. cutting down) must observe "no-cut" periods and other guidelines set out in the Bat Habitat Conservation Priorities in Missouri (eFOTG Section II). Trees killed or removed to allow sunlight to strike the bark of created snag trees DO NOT count toward the snag requirements specified above.
- Snags or trees killed to allow sunlight to strike the trunk of the selected tree, can be created with girdling or hack and squirt methods.
- When possible, create snags >19 inches DBH within 0.6 miles of a permanent water source.
- During implementation, keep a field log which includes:
    - Treatment dates
    - Count of existing/retained trees and treatment actions completed.
    - Count of created snag trees and treatment actions completed.
    - Provide to NRCS a treatment map that indicates location and type of habitat trees (managed live tree or created snag)
    - Provide digital photographs of managed live trees and snags, with photo locations shown on the map.

- Prior to implementation, NRCS will provide and explain Conservation Practice Standard Integrated Pest Management (Code 595) as it relates to implementing this enhancement. Pesticides planned for use will be assessed using WIN-PST and any required mitigation measures will be applied.
- Control non-native invasive species in the enhancement area.
- For information on state-approved Forestry Best Management Practices to protect streams, water quality, and minimize soil loss, refer to Missouri Forest Management Guidelines Unit 3 at https://mdc.mo.gov/sites/default/files/downloads/forestmanagement4.pdf

United States Department of Agriculture

Advanced Grazing Management Supplemental Payment

CONSERVATION STEWARDSHIP PROGRAM

Supplemental Payment – Advanced Grazing Management

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

APPLICABLE LAND USE: Pasture & Range

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

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 three prescribed grazing enhancements:

  For Range: E528N, E528P, E528R; or for Pasture: E528G, E528P, E528R

  And three supplemental enhancements (choose 3 from 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 supplemental category 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.
- The core prescribed grazing enhancement will be selected as a regular enhancement in the contract development process. The three supplemental enhancements will be selected with the SU designation. 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 supplemental enhancements, the applicant may schedule the remaining core or supplemental enhancements as long as the applicant has not 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 supplemental enhancements at the grazing unit level on all applicable acres where the enhancement suite is being adopted.
- The AGM Supplemental Payment 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 supplemental enhancement lifespan. Each enhancement has its own individual life span and will need to be implemented accordingly.

CONSERVATION STEWARDSHIP PROGRAM

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				
SUPPLEMENTAL ENHANCEMENTS **ADOPT THREE ADDITIONAL SUPPLEMENTAL ENHANCEMENTS FROM THIS GROUP**				
E314A-SU				
E315A-SU				
E338A-SU				

E382A-SU				
E382B-SU				
E472A-SU				
E595E-SU				
E645A-SU				

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				
SUPPLEMENTAL ENHANCEMENTS **ADOPT THREE ADDITIONAL SUPPLEMENTAL ENHANCEMENTS FROM THIS GROUP**				
E314A-SU				

E315A-SU				
E382A-SU				
E382B-SU				
E472A-SU				
E511B-SU				
E590C-SU				
E595E-SU				
E645A-SU				

CONSERVATION STEWARDSHIP PROGRAM

NRCS Documentation Review:

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

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

_____ _____

NRCS Technical Adequacy Signature Date