



## CROPLAND ENHANCEMENT BUNDLE

**B000CPL25**

## CONSERVATION STEWARDSHIP PROGRAM

### Crop Bundle # 25- Climate Smart Advanced Soil Health

**CONSERVATION PRACTICE: 328 - Conservation Crop Rotation, 329 - No Till, 340 - Cover Crop, 345 - Reduced Till, 590 - Nutrient Management, 595 - Pest Management Conservation System**

**APPLICABLE LAND USE: Crop (Annual & Mixed)**

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

**ENHANCEMENT LIFE SPAN: 1 years**

#### **Enhancement Description**

Improve crop land soil health by increasing plant diversity and minimizing soil disturbance. By implementing a combination of Enhancements selected for site-specific conditions to reduce physical and chemical soil disturbance, curb runoff and erosion, optimize plant cover and living root, diversify the farm ecosystem, improve nutrient cycling, and manage pests, a synergy is achieved to build healthy living soils, sustain plant productivity and health, sequester carbon, protect water and other resources including biodiversity, and provide beneficial habitat.

#### **Criteria**

- All the component enhancements in the required group, along with three additional component enhancements, 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.

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- 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.
- 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 on the following table.

Component Enhancement Code	Tract, Field Number or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
<b>Adopt the following component enhancement</b>				
E595B -Reduce risk of pesticide in water and air by utilizing IPM PAMS techniques				
<b>Adopt one component enhancement from this group</b>				
E345D- Reduced tillage to increase soil health and soil organic matter				
E329D- No till system to increase soil health and soil organic Matter				
E590A- Improving nutrient uptake efficiency and reducing risk of nutrient losses				
<b>Adopt one component enhancement from this group</b>				
E328K- Multiple crop types to benefit wildlife				
E328J- Improved crop rotation to provide benefits to pollinators				
<b>Adopt one component enhancement from this group</b>				



# CONSERVATION STEWARDSHIP PROGRAM

E340B- Intensive cover cropping to increase soil health and soil organic matter				
E340C- Use of multi-species cover crops to improve soil health and increase soil organic matter				
E340E- Use of soil health assessment to assist with development of cover crop mix to improve soil health				

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **B000CPL25:** Crop Bundle # 25- Climate Smart Advanced Soil Health

**CONSERVATION PRACTICE:** **328** - Conservation Crop Rotation; **329** - No Till; **340** - Cover Crop; **345** - Reduced Till; **590** - Nutrient Management; **595** - Pest Management Conservation System

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement is to reduce soil disturbance while maximizing soil cover, biodiversity, and the presence of living roots. Together, these practices reduce emissions to the atmosphere, increase carbon sequestration and have the co-benefit of reducing soil erosion, improving water infiltration, increasing nutrient cycling, and building more resilient soils over time and serving as a climate solution.

### **Important Consideration:**

Climate Smart Advanced Soil Health can be achieved by implementing all the following component enhancements along with three additional enhancements as shown in the Table below:

- Growing crops in a planned sequence (Conservation crop rotation) on the same field over time to increase carbon sequestration while delivering the co-benefits of building soil health.
- Limiting soil disturbance (No-till) to manage the amount, orientation and distribution of crop and plant residue on the soil surface to increase soil carbon sequestration while reducing emissions from the field and delivering the co-benefits of increasing plant-available moisture and improving water quality.
- Plant grasses, legumes, and forbs (Cover crops) for seasonal vegetative cover to build soil health and carbon stocks by reducing erosion, incrementally increasing organic matter, and building soil structure while reducing soil compaction.
- Minimizing soil disturbance (Reduced till) to manage the amount, orientation and distribution of crop and plant residue on the soil surface throughout the year to slowly build soil carbon stocks while delivering the co-benefits of increasing plant-available moisture and improving water quality.
- Manage properly the rate, source, placement and timing of plant nutrients and soil amendments to reduce environmental impact while delivering the co-benefits of strengthening plant health and productivity, improving water quality, lowering input costs, and improving or maintaining soil organic matter.
- Implement a site-specific combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies to reduce pest-induced crop losses, enhance ecosystem services, reduce the greenhouse gas emissions intensity, and strengthen the resilience of agricultural systems in the face of climate change.

## 2022 Alabama Supplemental Guidance for CSP Enhancement

Table 1. Adoption of a component enhancement in the bundle

Component Enhancement Code	Tract, Field Number or Name	Planned Amount (units)	Applied Amount (units)	Year(s)
<b>Adopt the following component enhancement</b>				
E595B -Reduce risk of pesticide in water and air by utilizing IPM PAMS techniques				
<b>Adopt one component enhancement from this group</b>				
E345D- Reduced tillage to increase soil health and soil organic matter				
E329D- No till system to increase soil health and soil organic Matter				
E590A- Improving nutrient uptake efficiency and reducing risk of nutrient losses				
<b>Adopt one component enhancement from this group</b>				
E328K- Multiple crop types to benefit wildlife				
E328J- Improved crop rotation to provide benefits to pollinators				
<b>Adopt one component enhancement from this group</b>				
E340B- Intensive cover cropping to increase soil health and soil organic matte				
E340C- Use of multi-species cover crops to improve soil health and increase soil organic matte				
E340E- Use of soil health assessment to assist with development of cover crop mix to improve soil health				

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- 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 on the following table.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION STEWARDSHIP PROGRAM**

**E314A**

**Brush management to improve wildlife habitat**

**Conservation Practice 314: Brush Management**

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

**RESOURCE CONCERN: Plants; Animals**

**ENHANCEMENT LIFE SPAN: 10 years**

**Enhancement Description**

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

**Criteria**

- This enhancement will be applied in a manner to achieve the desired control of the target woody species while protecting the desired species through mechanical, chemical, or biological methods, alone or in combination. NRCS will not develop biological or chemical treatment recommendations except for biological control using grazing animals. NRCS may provide clients with acceptable biological and/or chemical control references.
- Identify wildlife species of concern and landscape specific brush habitat functionality that is consistent with the related ecological site steady state or another desired state that will meet the objective.
- Brush management will be planned and applied in a manner to meet the habitat requirements for wildlife species of concern as determined by the state's NRCS Wildlife Habitation Evaluation Guide (WHEG).



## CONSERVATION STEWARDSHIP PROGRAM

- Evaluate wildlife habitat with the state NRCS WHEG and manage for a value of 0.60 or greater.
- Brush management will be designed to achieve the desired plant community based on species composition, structure, density, and canopy (or foliar) cover or height.
- Conduct treatments during periods of the year that accommodate reproduction and other life-cycle requirements of target wildlife and pollinator species.



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### **Participant will:**

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

### **NRCS will:**

As needed, provide technical assistance to participant as requested.

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

**Existing WHEG score = \_\_\_\_\_ Planned Post Implementation WHEG score = \_\_\_\_\_**

- Prior to implementation, NRCS will make cover or density measurements at georeferenced transects on key areas within the treatment area.
- After implementation, NRCS will return to georeferenced area to measure cover or density and report the results.
- After implementation, review records to verify participant implemented enhancement to meet criteria.





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- 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

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E314A –Brush Management to Improve Wildlife Habitat**

**Conservation Practice 314A: Brush Management**

BRIEF DESCRIPTION OF ENHANCEMENT: Brush Management to enhance habitat for native wildlife. This enhancement will be used to remove invasive shrubby species from linear edges. Shrubs such as Chinese privet, Japanese privet, chinaberry, Chinese tallow tree, or other similar species encroach on edges and capture sunlight. This prevents herbaceous plants from growing along those edges.

**Some important things to note:**

- **Eligible Treatment Area:** Any edge between an open area and timberland that has thick, shrubby brush preventing sunlight from penetrating the edge.
- This practice is applicable where invasive brush species are encroaching into open edges such as pastures, wildlife openings, roads, firebreaks, or other similar areas.
- Treatment will consist of herbicide application by backpack, utv, tractor or other similar method.
- Choose an herbicide that will remove target species without damaging trees in the overstory. Be cautious of soil active herbicides in that setting.
- Follow herbicide label directions.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- HERBICIDE INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E315A**

**CONSERVATION STEWARDSHIP PROGRAM**

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

**CONSERVATION PRACTICE: 315 - Herbaceous Weed Treatment**

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

**RESOURCE CONCERN: Plant, Wildlife**

**ENHANCEMENT LIFE SPAN: 5 years**

**Enhancement Description**

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

**Criteria**

- Herbaceous weed treatment will be applied to achieve the recorded desired level of control of the target weed species and protect the recorded desired species within the plant community. NRCS will not develop biological or chemical recommendations except biological control by grazing animals.
- Ecological site description (ESD), state and transition models will be employed in development of treatment specifications that are ecologically sound and defensible. The treatments must be congruent with dynamics of the ecological site(s) and keyed to state and plant community phases that have the potential for supporting the desired plant community. If an ESD is not available, base specifications on the best approximation of the desired plant community composition, structure, and function.
- Herbaceous weed treatment will include post treatment measures as needed to achieve the recorded resource management objectives.

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## CONSERVATION STEWARDSHIP PROGRAM

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

### Documentation and Implementation Requirements

#### Participant will:

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



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Treatment Date	
Treatment Method	
Amount Applied (acres)	

- During implementation, develop a map indicating treated areas.
- After implementation, make the following records and documents available for review by NRCS to verify implementation of the enhancement:
  - Monitoring data records associated with management plan that measures trend toward desired plant community.
  - Treatment records including timing, application method and amount (acres) applied.

**NRCS will:**

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



- After implementation, review documentation and records to verify implementation of the enhancement.

# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E315A – Herbaceous Weed Treatment to Create Desired Plant Communities Consistent with the Ecological Site**

**Conservation Practice 315A: Herbaceous Weed Treatment**

BRIEF DESCRIPTION OF ENHANCEMENT: This herbaceous weed treatment enhancement will be used to remove invasive herbaceous species from pasture, forest land, and other associated lands. Invasive plants such as kudzu and cogongrass or other similar species rapidly infest areas and shade or out compete native vegetation. This destroys native plant communities in those areas.

**Some important things to note:**

- **Minimum Required Treatment:** 100% of the eligible treatment area must be completed during the contract. Eligible treatment area is defined as any area with an infestation as described above. An exception to the 100% treatment rule can be made by field office personnel if there is a need to leave an infested area for conservation purposes, such as to protect a gulley covered in kudzu from excess erosion that would take place if kudzu were treated in that particular gulley.
- This practice is applicable where invasive herbaceous species are encroaching into areas such as pastures, food plots, roads, firebreaks, woodlands or other similar areas.
- Treatment will consist of herbicide application by backpack, utv, tractor or other similar method.
- If possible, choose a herbicide that will remove target species without damaging trees in the overstory. Be cautious of soil active herbicides in that setting.
- Follow herbicide label directions.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- HERBICIDE INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

# Alabama Supplemental Guidance for CSP Enhancement

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CSP Participant Name

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Date





## CONSERVATION ENHANCEMENT ACTIVITY

# CONSERVATION STEWARDSHIP PROGRAM

### E327A

Conservation cover for pollinators and beneficial insects

Conservation Practice 327: Conservation

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 Years

#### Enhancement Description

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

#### Criteria

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

#### A. Pollinators

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

The lists must emphasize as many native species as practical.

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



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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.

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## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

Participant will:

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

NRCS will:

- Prior to implementation, discuss with participant the proposed habitat areas to verify they are in locations suitable for the enhancement.
- Prior to implementation, provide participant with suitable plant lists.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327).
- Prior to implementation, provide participant with a recommended seed mix and planting specifications per above criteria (grass/forb ratio; number of forb species per bloom period for pollinator habitat plantings)
- After implementation, verify successful establishment (per planting criteria above) by review of documentation and photographs.



**NRCS Documentation Review:**

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

**CONSERVATION  
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PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E327A – Conservation Cover for Pollinators and Beneficial Insects**

**Conservation Practice 327: Conservation Cover**

BRIEF DESCRIPTION OF ENHANCEMENT: This enhancement will be used to plant mixes which will be excellent pollinator and beneficial insect habitat.

**Some important things to note:**

- A minimum of one-half acre (1/2 ac) of planting must be completed for every 40 acres of land in the CSP application. (1.25% of total acres)
- To ensure adequate sunlight for successful planting, area to be seeded shall have a minimum of 30 feet in width between trees if planted beneath mature tree cover.
- Select plants from the attached plant list. Three must be planted from each bloom period, with a total of 9 plants to be planted. Two of the 9 plants must be those designated as preferred for beneficial insects. Those are designated on the plant list with two asterisks (\*\*).
- Area should be treated with appropriate herbicides prior to establishment of pollinator habitat if johnson grass, cogon grass or other hard to eradicate species such as bahia or Bermuda are present.
- If the area to be treated has stumps and/or logging debris at the time of practice planning, then the area must be de-stumped and cleared prior to planting and subsequent practice check out.
- NO fertilizer will be applied to the site at planting.
- Maintenance shall be completed on these areas beginning the second winter after establishment. Some form of maintenance must be completed on all acres at least once every 3 years. The best regime is to implement maintenance on 1/3 of the acreage annually. Prescribed burning is the recommended form of maintenance, however, mowing high (12 inches) acceptable. Mowing could allow a duff layer to develop and potentially limit pollinator plant growth and survival. Therefore, if mowing is the main form of maintenance, then either fire or light disking must be used at least once every 3<sup>rd</sup> maintenance cycle to break the duff layer. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point.
- Spot spraying to stop invasives and woody plant encroachment is recommended during the life of the practice but ensure herbicide label directions are followed.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED

## Alabama Supplemental Guidance for CSP Enhancement

- SEED INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



## **Conservation Security Program**

### **Pollinator & Beneficial Insect Habitat Plant List**

*Choose a Minimum of 9 Plants. (3 Per Flowering Period)*

#### **Early Flowering Species**

Smooth Beardtongue ( <i>Penstemon digitalis</i> )	$\frac{3}{16}$ pound pls* per acre
Butterfly Weed** ( <i>Asclepias tuberosa</i> )	$\frac{1}{4}$ pound pls per acre
Lanceleaf Tickseed** ( <i>Coreopsis lanceolata</i> )	$\frac{1}{2}$ pound pls per acre
Blue False Indigo ( <i>Baptisia australis</i> )	1 pound pls per acre
Common Milkweed** ( <i>Asclepias syriaca</i> )	$\frac{1}{4}$ pound pls per acre
Plains Coreopsis** ( <i>Coreopsis tinctoria</i> )	$\frac{3}{16}$ pound pls per acre
Purple Prairie Clover ( <i>Dalea purpurea</i> )	$\frac{3}{16}$ pound pls per acre
Pale Purple Coneflower ( <i>Echinacea pallida</i> )	$\frac{1}{4}$ pound pls per acre
Spotted Beebalm ( <i>Monarda punctata</i> )	$\frac{1}{8}$ pound pls per acre
Black-Eyed Susan** ( <i>Rudbeckia hirta</i> )	$\frac{1}{4}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Golden Alexander\*\* (*Zizia aurea*)  $\frac{1}{4}$  pound pls per acre

### **Mid-Season Flowering Species**

Large Flower Partridge Pea (*Chamaecrista fasciculata*)  $\frac{1}{4}$  pound pls per acre

Small Flower Partridge Pea (*Chamaecrista nictitans*)  $\frac{1}{4}$  pound pls per acre

Slender Mountain Mint\*\* (*Pycnanthemum tenuifolium*)  $\frac{1}{8}$  pound pls per acre

Illinois Bundleflower (*Desmanthus illinoensis*)  $\frac{1}{2}$  pound pls per acre

Purple Coneflower (*Echinacea purpurea*)  $\frac{1}{2}$  pound pls per acre

Blue Verbena\*\* (*Verbena hastata*)  $\frac{5}{16}$  pound pls per acre

Yellow Giant Hyssop (*Agastache nepetoides*)  $\frac{1}{4}$  pound pls per acre

Golden Wave Tickseed\*\* (*Coreopsis basalis*)  $\frac{1}{8}$  pound pls per acre

Rattlesnake Master (*Eryngium yuccifolium*)  $\frac{3}{8}$  pound pls per acre

White Prairie Clover (*Dalea candida*)  $\frac{1}{4}$  pound pls per acre

Boneset (*Eupatorium perfoliatum*)  $\frac{1}{8}$  pound pls per acre

Roundleaf Thoroughwort (*Eupatorium rotundifolium*)  $\frac{1}{8}$  pound pls per acre

Lance-Leaved Goldenrod (*Euthamia graminifolia*)  $\frac{1}{16}$  pound pls per acre

01/17/2021

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Rosemallow ( <i>Hibiscus moscheutos</i> )	$\frac{1}{4}$ pound pls per acre
Violet Lespedeza ( <i>Lespedeza violacea</i> )	$\frac{1}{4}$ pound pls per acre
Spiked Blazing Star ( <i>Liatris spicata</i> )	$\frac{1}{4}$ pound pls per acre
Lupine ( <i>Lupinus perennis</i> )	$\frac{5}{8}$ pound pls per acre
Bergamot** ( <i>Monarda fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Mexican Hat ( <i>Ratibida coumnraris</i> )	$\frac{1}{8}$ pound pls per acre
Greyheaded Coneflower** ( <i>Ratibida pinnata</i> )	$\frac{1}{4}$ pound pls per acre
Clasping Coneflower ( <i>Rudbeckia amplexicaulis</i> )	$\frac{1}{4}$ pound pls per acre
Passion Flower ( <i>Passiflora incarnate</i> )	$\frac{1}{2}$ pound pls per acre
Wild Quinine ( <i>Parthenium integrifolium</i> )	$\frac{3}{16}$ pound pls per acre

### **Late Flowering Species**

Joe-Pye Weed ( <i>Eupatorium fistulosum</i> )	$\frac{1}{8}$ pound pls per acre
Sweet Joe-Pye Weed ( <i>Eupatorium purpureum</i> )	$\frac{1}{8}$ pound pls per acre
Swamp Sunflower** ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Maximilian Sunflower** ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre
Cardinal Flower ( <i>Lobelia cardinalis</i> )	$\frac{1}{8}$ pound pls per acre
Butterfly pea ( <i>Centrosema virginianum</i> )	$\frac{1}{8}$ pound pls per acre
Heath Aster** ( <i>Aster pillosus/Symphotrichum pilosum</i> )	$\frac{1}{8}$ pound pls per acre
Wand Goldenrod** ( <i>Solidago stricta</i> )	$\frac{1}{8}$ pound pls per acre
Pine Barren Goldenrod** ( <i>Solidago fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Tall Goldenrod** ( <i>Solidago altissima</i> )	$\frac{1}{8}$ pound pls per acre
Gray Goldenrod** ( <i>Solidago nemoralis</i> )	$\frac{1}{8}$ pound pls per acre
Rough Goldenrod** ( <i>Solidago rugosa</i> )	$\frac{1}{8}$ pound pls per acre
Swamp Milkweed** ( <i>Asclepias incarnata</i> )	$\frac{3}{8}$ pound pls per acre
Smooth Aster** ( <i>Aster laevis</i> )	$\frac{1}{8}$ pound pls per acre
Showy Tickseed ( <i>Bidens aristosa</i> )	$\frac{3}{8}$ pound pls per acre
Tall Tickseed** ( <i>Coreopsis tripteris</i> )	$\frac{1}{8}$ pound pls per acre
Florida Beggarweed ( <i>Desmodium floridanum</i> )	$\frac{5}{16}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Dixie Tick Trefoil ( <i>Desmodium tortuosum</i> )	$\frac{5}{16}$ pound pls per acre
Perplexed Tick Trefoil ( <i>Desmodium perplexum</i> )	$\frac{5}{16}$ pound pls per acre
Pine Barren Tick Trefoil ( <i>Desmodium strictum</i> )	$\frac{5}{16}$ pound pls per acre
Indian Blanket** ( <i>Gaillardia pulchella</i> )	$\frac{3}{8}$ pound pls per acre
Sneezeweed ( <i>Helenium autumnale</i> )	$\frac{1}{8}$ pound pls per acre
Evening Primrose ( <i>Oenothera biennis</i> )	$\frac{1}{8}$ pound pls per acre
Yellow Wingstem ( <i>Verbesina alternifolia</i> )	$\frac{5}{16}$ pound pls per acre
White Wingstem ( <i>Verbesina virginica</i> )	$\frac{5}{16}$ pound pls per acre
Iron Weed ( <i>Vernonia altissima</i> )	$\frac{3}{16}$ pound pls per acre
Alabama Iron Weed ( <i>Vernonia noveboracensis</i> )	$\frac{3}{16}$ pound pls per acre

\*PLS = Pure Live Seed (% purity x % germination = % pure live seed)

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example PLS = .90 X .70 = **63 percent**

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

\*\* Denotes plants that make good habitat for beneficial insects. **At least 2 of these should be planted in the mix** of 9 as designated above.



## CONSERVATION ENHANCEMENT ACTIVITY

E327B

## CONSERVATION STEWARDSHIP PROGRAM

### Establish Monarch butterfly habitat

Conservation Practice 327: Conservation Cover

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 years

#### Enhancement Description

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

#### Criteria

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

##### **A. Monarch butterflies**

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



## CONSERVATION STEWARDSHIP PROGRAM

(FOTG). Milkweed seeds are included in meeting the 60% minimum because milkweeds are excellent nectar plants. The FOTG provides information on the required number of forb species per bloom period (early, mid, or late season) for monarch habitat plantings. Bloom periods are to coincide with monarch presence in the area.

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

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

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

### **B. Planting criteria for monarch butterfly habitat**

- Site selection should consider existing weed pressures and available methods of control. Delay planting and conduct an additional growing season of weed control if high weed pressure requires aggressive treatment.
- Site preparation and plant establishment shall be accomplished according to the state's specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327) or Wildlife Habitat Planting (Code 420).
- Successful establishment is when the planting provides at least 80 percent soil cover when visually estimated, and resultant cover consists of at least 500 milkweed plants



## CONSERVATION STEWARDSHIP PROGRAM

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

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

### **C. Operation and maintenance for monarch butterfly habitat**

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





## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

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

#### NRCS will:

- Prior to implementation, assess habitat condition using a monarch Wildlife Habitat Evaluation Guide (WHEG) to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. **Benchmark WHEG score = \_\_\_\_\_ Planned Post Implementation WHEG score = \_\_\_\_\_**
- Prior to implementation, provide participant with suitable larval host plants and nectar plants lists.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Conservation Cover (Code 327) or Wildlife Habitat Planting (Code 420).
- Prior to implementation, provide participant with a recommended seed mix and planting specifications per above criteria (grass/forb ratio; number of forb species per bloom period for monarch habitat plantings).
- After implementation, verify successful establishment (per planting criteria above).



**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



## Alabama Supplemental Guidance for CSP Enhancement

### **2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

#### **E327B – Establish Monarch Butterfly Habitat**

#### **Conservation Practice 327: Conservation Cover**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement will be used to establish monarch butterfly habitat in Alabama with seeds or plugs on marginal cropland, field borders, contour buffer strips, and similar areas.

#### **Some important things to note:**

- A minimum of one-half acre (1/2 ac) of planting must be completed for every 40 acres of land in the CSP application, regardless of land use. (1.25% of total acres)
- Select plants from the approved plant list. At least three must be planted from each bloom period for a total of at least 9 species.
- Area should be treated with appropriate herbicides prior to establishment of pollinator habitat if johnson grass, cogon grass or other hard to eradicate species such as bahia or Bermuda are present.
- NO fertilizer will be applied to the site at planting.
- More diverse mixes will likely result in superior habitat for monarchs and for pollinator communities in general. More diverse mixes can be designed without major increase in cost by adding a mixture of low-priced, moderately-priced and high-priced species.
- List of planned species and rates must be generated with the Alabama Monarch Butterfly Seed Mixture Calculator (Excel spreadsheet). Work with a seed vendor or nursery to make decisions on the seed mix that best suits landowner objectives. Examples of seed mixtures are provided in the Alabama Monarch Butterfly Seed Mixture Calculator. There are many species mixture possibilities.
- Planting multiple species of Coreopsis or Rudbeckia should be avoided.
- Maintenance shall be completed on these areas beginning the second winter after establishment outside of the season when monarch larvae or adults are present. December and January are the best months to perform maintenance in Alabama. Some form of maintenance must be completed on all acres at least once every 3 years. The best regime is to implement maintenance on 1/3 of the acreage annually. Prescribed burning is the recommended form of maintenance, however, mowing high (12 inches) acceptable. Mowing could allow a duff layer to develop and potentially limit pollinator plant growth and survival. Therefore, if mowing is the main form of maintenance, then either fire or light disking must be used at least once every 3<sup>rd</sup> maintenance cycle to break the duff layer. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point.
- Spot spraying of invasives or unwanted vegetation is recommended but ensure herbicide label directions are followed.

\*Some information was obtained from the South Carolina NRCS monarch butterfly habitat establishment job sheet.

## Alabama Supplemental Guidance for CSP Enhancement

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- SEED INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

---

Date



## CONSERVATION ENHANCEMENT ACTIVITY

E328E

# CONSERVATION STEWARDSHIP PROGRAM

### Soil health crop rotation

Conservation Practice 328: Conservation Crop Rotation

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN: Soil

PRACTICE LIFE SPAN: 1 Year

#### Enhancement Description

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

#### Criteria

- Crops must be grown in a planned sequence as outlined in the plan. The crop rotation must include a minimum of four different crop types. For the purpose of this criteria a cover crop is considered a different crop.
- Where applicable, plan suitable crop substitutions when the planned crop cannot be planted due to weather, soil conditions, or other local situations.
- Grow crops that will produce a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation, as determined by the Soil Conditioning Index (SCI). (management SCI value)



## CONSERVATION STEWARDSHIP PROGRAM

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



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

Participant will:

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

### Current Management – Crop Rotation

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

### Current Management – Field Operations

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

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

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



# CONSERVATION STEWARDSHIP PROGRAM

## Planned Management – Field Operations

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

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

NRCS will:

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





# CONSERVATION STEWARDSHIP PROGRAM

and water erosion prediction technologies. Crop rotation must produce a positive trend in the Organic Matter (OM) subfactor value.

**Management SCI Value = \_\_\_\_\_**

**OM subfactor value = \_\_\_\_\_**

- Prior to implementation, use NRCS wind and water erosion prediction technologies to document benchmark and planned crop rotation to show increase in living root periods.
- During implementation, evaluate planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria.
- After implementation, if the applied crop rotation is different than the planned crop rotation, use information provided from the participant to calculate SCI value to document that the applied rotation met the enhancement criteria.  
**Management SCI Value = \_\_\_\_\_ OM subfactor value = \_\_\_\_\_**
- After implementation, review pictures showing residue or growing green crops throughout the year to verify the applied system meets the enhancement criteria.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## ALABAMA – E328E Soil Health Crop Rotation

-All crops must be planted no till/strip till

-No more than 2 years of a 5-year rotation may be planted to the same crop (except corn)

1. **A perennial grass grown at least 2 years but no more than 4 years with at least two other crops in the rotation:**

Examples:

- a. Corn grain, 1 yr., cotton 1 yr., ***Small grain (rye, wheat, oat, barley, triticale)/legume cover crop not harvested (interseeded) prior to each cash crop, Corn grain, 1 yr., Fescue or Bahiagrass 2 yr. or more\****.
- b. Corn grain, 1 yr., Soybean 1yr. ***Small grain/legume/brassica cover crop***, 1 yr. Corn grain, 1 yr., ***Fescue 2 yr. or more.***
- c. Corn grain, 1 yr. ***Small grain/legume/brassica cover crop***, Peanut 1yr. ***Small grain/legume/brassica cover crop***, 1 yr. Corn grain ***Small grain/legume/brassica cover crop***, 1 yr., ***Bahiagrass 2 yr. or more.***

OR;

2. **A legume that is grown at least 2 years but no more than 4 years with at least one other crop in the rotation:**

Examples:

- a. Any of the above rotations except substituting alfalfa or sericea lespedeza for the perennial grasses

OR;

3. **A legume-grass mixture that is grown at least 2 years but no more than 4 years with at least one other crop in the rotation:**

Examples:

- a. Any of the above rotations except substituting fescue/white clover or bahiagrass/white clover for the perennial grasses

OR;

4. **A small grain grown in combination with a legume, forb, or grass-forb mixture that is used as a green manure, whether interseeded or planted after small grain harvest with at least two other crops in the rotation.**

Examples:

- a. Corn (grain) 1 yr. , ***Wheat*** harvested rdl, ***Pearl Millet*** summer cover crop not harvest; ***Small grain/legume/brassica cover crop***; Cotton 1 yr., ***Small grain/legume/brassica cover crop***, Corn grain, 1 yr. ***wheat*** harvested for grain, soybean double-crop, Corn grain, 1 yr. ***Small grain/legume/brassica cover crop***. Cover crop must be at least 24 inches tall or 5000 lbs. dry matter prior to termination except prior to corn planting.
- b. Corn (grain) 1 yr. , ***Small grain/legume/brassica cover crop***; Peanut 1 yr., ***Small grain/legume/brassica cover crop***, Corn grain, 1 yr. ***wheat*** harvested for grain, soybean double-crop, Corn grain, 1 yr. ***Small grain/legume/brassica cover crop***.. Cover crop must be at least 24 inches tall or 5000 lbs. dry matter prior to termination except prior to corn planting.

\* The Resource Conserving Crop in all examples rotations are ***italic and bold*** font.



**CONSERVATION ENHANCEMENT ACTIVITY**

**E328J**

**CONSERVATION STEWARDSHIP PROGRAM**

**Improved crop rotation to provide benefits to pollinators**

**Conservation Practice 328: Conservation Cropping System**

**APPLICABLE LAND USE: Crop (Annual & Mixed)**

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 1 year**

**Enhancement Description**

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

**Criteria**

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

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

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



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

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

### Current Management Rotation (complete table for each rotation)

Field	Current Crops (in sequence)	Planting Date	Harvest Date

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

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



# CONSERVATION STEWARDSHIP PROGRAM

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

Field	Crop	Insecticide Applied	Application Date	Application Rate	Crop Stage

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

**NRCS will:**

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



# CONSERVATION STEWARDSHIP PROGRAM

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

After implementation, review insecticide application records to verify implementation meets the enhancement criteria.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

**ALABAMA – E328J Improved Crop Rotation to provide benefits to pollinators**

- The crop rotation shall include a minimum of three different crops in a minimum five-year crop rotation.
- The existing rotation must be improved by the addition of pollinator friendly crops not currently grown.
- Only the acres planted to the pollinator friendly crop shall be contracted for payment.
- The pollinator friendly crop will be planted on a minimum of 5% of the cropland acres.
- Complete the tables in the national jobsheet regarding the current and planned rotation.
- Complete the tables in the national jobsheet regarding records of insecticide applications to the pollinator friendly crop.
- All pollinator friendly crops must be allowed to complete flowering before termination.
- 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.
- Utilize a planting pattern to coincide with sprayer boom widths so that there is not incidental overspray of insecticides applied to adjacent crops.
- Refer to the attached list for approved pollinator crops for Alabama. Seed for pollinator crops must not be treated with systemic insecticides. Additionally, some other crop types may be suitable as pollinators when seed treatments with systemic insecticides have not been applied. Documentation of non-treated seeds must be available. Contact the state agronomist regarding crops not listed.



Note that seeds coated with insecticides would be prohibited for this practice.					
Crop	Scientific name	Primary Use	Additional Use	Notes	Sources (see below for details)
Alfalfa	<i>Medicago sativa</i>	harvestable	cover crop, wildlife		NASS, Smith
Basil	<i>Ocimum basilicum</i>	harvestable			
Bean, fava or bell	<i>Vicia faba</i>	harvestable			
Bean, lablab hyacinth	<i>Lablab purpureus</i>	harvestable	harvestable		Smith
Bean, lima	<i>Phaseolus lunatus</i>	harvestable			NASS
Bean, snap (bush)	<i>Phaseolus vulgaris</i>	harvestable			NASS
Bean, snap (pole)	<i>Phaseolus coccineus</i>	harvestable			NASS
Bean, velvet	<i>Mucuna pruriens</i>	harvestable			Nichols
Borage	<i>Borago officinalis</i>	harvestable			
Buckwheat	<i>Fagopyrum esculentum</i>	harvestable	cover crop, wildlife		Nichols , Smith
Canola	<i>Brassica napus</i>	harvestable			
Chickpea	<i>Cicer arietinum</i>	harvestable			NASS
Chicory	<i>Cichorium intybus</i>	cover crop	wildlife		
Cilantro	<i>Coriandrum sativum</i>	harvestable			
Clover, alsike	<i>Trifolium hybridum</i>	cover crop			
Clover, alyce	<i>Alysicarpus vaginalis</i>	cover crop	cover crop		Smith
Clover, arrowleaf	<i>Trifolium vesiculosum</i>	cover crop	pasture legume, wildlife		Surrency, Smith
Clover, berseem	<i>Trifolium alexandrinum</i>	cover crop			
Clover, crimson	<i>Trifolium incarnatum</i>	cover crop			AL Extn (legume cover crops), Smith
Clover, kura	<i>Trifolium ambiguum</i>	cover crop			
Clover, red	<i>Trifolium pratense</i>	cover crop	wildlife		Smith
Clover, rose	<i>Trifolium hirtum</i>	cover crop			
Clover, strawberry	<i>Trifolium fragiferum</i>	cover crop			

Clover, subterranean	<i>Trifolium subterraneum</i>	cover crop	wildlife		Smith
Clover, white	<i>Trifolium repens</i>	cover crop	wildlife		Smith
Collards	<i>Brassica oleracea</i> var. <i>viridis</i>	cover crop	harvestable for greens	only if allowed to flower	NASS
Cucumber	<i>Cucumis sativus</i>	harvestable			
Cut flowers (e.g. cosmos, zinnias)	(various)	harvestable			NASS
Daikon	<i>Raphanus sativus</i> var. <i>Longipila</i>	cover crop	harvestable	only if allowed to flower	NASS
Dill	<i>Anethum graveolens</i>	harvestable			
Eggplant	<i>Solanum melongena</i>	harvestable			NASS
Fennel	<i>Foeniculum vulgare</i>	harvestable			
Flax	<i>Linum usitatissimum</i>	cover crop			
Garlic	<i>Allium sativum</i>	harvestable			
Kale	<i>Brassica oleracea</i> var. <i>sabellica</i>	cover crop	harvestable for greens	only if allowed to flower	NASS, Smith
Lentil	<i>Lens culinaris</i>	harvestable			
Lupine, Armex	<i>Lupinus elegans</i>	cover crop			Surrency
Lupine, sweet blue	<i>Lupinus angustifolius</i>	cover crop	wildlife		Nichols, Smith, Clark
Lupine, white	<i>Lupinus albus</i>	cover crop		AU HOMER cultivar released	Nichols, Smith, Clark
Meadowfoam	<i>Limnanthes alba</i>	cover crop			
Melon, cantaloupe or muskmelon	<i>Cucumis melo</i> var. <i>cantalupensis</i>	harvestable			NASS
Melon, honeydew	<i>Cucumis melo</i> 'Honey Dew'	harvestable			
Milkvetch	<i>Astragalus</i> spp.	cover crop			
Mustard greens	<i>Brassica juncea</i>	cover crop	harvestable for greens	only if allowed to flower	NASS, Nichols
Okra	<i>Abelmoschus esculentus</i>	harvestable			NASS
Parsley	Could harvest, then let flower.	harvestable			NASS
Partridge Pea	<i>Chamaecrista fasciculata</i>	cover crop			
Partridge Pea, small	<i>Chamaecrista nictitans</i>	cover crop			

Pea, Caley	<i>Lathyrus hirsutus</i>	harvestable	wildlife		Surrency, Smith	
Pea, Austrian winter	<i>Pisum arvense</i>	cover crop	wildlife		AL Extn (legume cover crops), Smith	
Pea, green, sugar, or snow	<i>Pisum sativum</i>	harvestable			NASS	
Pea, southern (cowpeas), blackeyed, purple hull, crowder, etc.	<i>Vigna unguiculata</i>	harvestable			NASS, AL Extn (legume cover crops), Nichols, Smith	
Peppers, Bell, chile, pimientos, etc.	<i>Capsicum</i> spp.	harvestable			NASS	
Pumpkin	<i>Cucurbita pepo</i>	harvestable			NASS	
Radish, oilseed/tillage	<i>Raphanus sativus</i>	cover crop			Nichols	
Safflower	<i>Carthamus tinctorius</i>	harvestable				
Sanfoin	<i>Onobrychis viciifolia</i>	cover crop				
Sesame	<i>Sesamum orientale</i>	harvestable	cover crop, wildlife		Smith	
Squash, summer	<i>Cucurbita pepo</i>	harvestable			NASS	
Squash, winter	<i>Cucurbita maxima</i> <sup>1</sup>	harvestable			NASS	
Strawberry	<i>Fragaria × ananassa</i>	harvestable			NASS	
Sunflower	<i>Helianthus annuus</i>	harvestable	wildlife		NASS, Nichols, Smith	
Sunn Hemp	<i>Crotalaria juncea</i>	cover crop			AL Extn (legume cover crops), Nichols, Smith	
Sweet alyssum	<i>Lobularia maritima</i>	cover crop				
Tomatillo	<i>Physalis philadelphica</i>	harvestable				
Tomato	<i>Lycopersicon esculentum</i>	harvestable			NASS	
Turnip	<i>Brassica rapa</i> subsp. <i>rapa</i>	cover crop	harvestable for greens	only if allowed to flower	NASS, Smith	
Vetch, Cahaba	<i>Vicia sativa</i> cv. 'cahaba white'	cover crop				
Vetch, common or garden	<i>Vicia sativa</i>	cover crop	wildlife		Smith	
Vetch, hairy or chickling	<i>Vicia villosa</i>	cover crop			AL Extn (legume cover crops), Surrency, Nichols, Smith	
Vetch, purple	<i>Vicia americana</i>	cover crop				
Watermelon	<i>Citrullus lanatus</i>	harvestable			NASS	

Footnotes						
<sup>1</sup> Winter squash also includes <i>Cucurbita argyrosperma</i> , <i>C. moschata</i> , and <i>C. pepo</i> .						
<b>Crop Information Sources</b>						
Alabama Extension. 2018. Cover Crops: Legumes. <a href="https://www.aces.edu/blog/topics/row-cover-crop-soils/cover-crop-selection-legumes/">https://www.aces.edu/blog/topics/row-cover-crop-soils/cover-crop-selection-legumes/</a>						
Clark, A. (Ed.). 2008. Managing cover crops profitably. Diane Publishing. <a href="https://www.sare.org/Learning-Center/Books/Managing-Cover-Crops-Profitably-3rd-Edition/Text-Version/Appendix-B">https://www.sare.org/Learning-Center/Books/Managing-Cover-Crops-Profitably-3rd-Edition/Text-Version/Appendix-B</a>						
NASS, USDA. 2017. Census of Agriculture (Alabama)--State Level						
Nichols, K. 2016. Alabama: Why plant cover crops? AgFax (Jan 15). <a href="https://agfax.com/2016/01/15/alabama-plant-cover-crops/">https://agfax.com/2016/01/15/alabama-plant-cover-crops/</a>						
Smith, M, J. Armstrong, J. Johnson, and P. Mask. 2019. Plantings for						
Surrency, D. and L. Undayag. 2000. Cover Crops for the Southeast. US						
<b>Invasive Plant Information Sources (did not include species found to be invasive or likely to be invasive in Alabama)</b>						
Alabama Invasive Plant Council. <a href="https://www.invasive.org/species/list.cfm?id=71">https://www.invasive.org/species/list.cfm?id=71</a>						
EDD MapS. <a href="https://www.eddmaps.org/species/subject.cfm?sub=6008">https://www.eddmaps.org/species/subject.cfm?sub=6008</a>						
IPM Images. <a href="https://www.ipmimages.org/browse/subinfo.cfm?sub=5533">https://www.ipmimages.org/browse/subinfo.cfm?sub=5533</a>						



## CONSERVATION ENHANCEMENT ACTIVITY

### E328K

# CONSERVATION STEWARDSHIP PROGRAM

## Multiple crop types to benefit wildlife

### Conservation Practice 328: Conservation Cropping System

**APPLICABLE LAND USE: Crop (Annual & Mixed)**

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 1 year**

#### Enhancement Description

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

#### Criteria

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

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

## CONSERVATION STEWARDSHIP PROGRAM





# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

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

### Current Management Rotation (complete table for each rotation)

Field	Current Crops (in sequence)	Planting Date	Harvest Date

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

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

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



# CONSERVATION STEWARDSHIP PROGRAM

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

**NRCS will:**

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

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



## **ALABAMA – E328K Multiple crop types to benefit wildlife**

- Crops must be planted in alternating strips across the field not to exceed 240 feet in width.
- Annual crop strips will be rotated each year, minimum 0.5 ac. in size and maximum 40 ac. The rotation must include a minimum of two different crops in a three-year rotation.
- This enhancement must be utilized on a minimum of 25% of the cropland acres.
- Eligible crops include corn, soybean, peanut, grain sorghum, and sunflower. Stubble must be left standing from harvest until the following spring unless a cover crop is planted.
- Photo documentation is required.



**CONSERVATION ENHANCEMENT ACTIVITY**

**E328P**

**CONSERVATION STEWARDSHIP PROGRAM**

Low Nitrogen Requirement Annual Crop Rotation

**CONSERVATION PRACTICE: 328 - Conservation Crop Rotation**

**APPLICABLE LAND USE: Crop (Annual & Mixed)**

**RESOURCE CONCERN: Soil, Water**

**ENHANCEMENT LIFE SPAN: 1 years**

**Enhancement Description**

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

**Criteria**

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



## CONSERVATION STEWARDSHIP PROGRAM

- Use Land Grant University guidance and average county crop yields for the past 5 years to determine the N-requirement of each crop in both the benchmark and planned rotations.
- Design the crop sequence to provide sufficient diversity in plant family and species as well as timing and type of field operations to suppress pest(s) of concern, which may include weeds, insects, and pathogens. Use Land Grant University or industry standards to determine a suitable crop sequence.
- Select crops, varieties of crops, and the sequences of crops based on local climate patterns, soil conditions and irrigation water availability. Plan for rotation substitutions, for planting delays, or crop failures.
- Perennials are allowed in both the benchmark and planned rotation; however, they cannot be included in the average annual N-requirement calculation to meet the enhancement criteria.
- Fallow periods are allowed in both the benchmark and planned rotation; however, they cannot be included in the average annual N-requirement calculation to meet the enhancement criteria.

### Documentation and Implementation Requirements

#### **Participant will:**

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

#### **NRCS will:**

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



# CONSERVATION STEWARDSHIP PROGRAM

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

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

### Benchmark Rotation and N Requirement

Field: \_\_\_\_\_ Acres: \_\_\_\_\_

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



# CONSERVATION STEWARDSHIP PROGRAM

## Planned Rotation and N Requirement

Field: \_\_\_\_\_ Acres: \_\_\_\_\_

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

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

Re-calculated Average Annual Erosion (ton/ac/yr) = \_\_\_\_\_ SCI value = \_\_\_\_\_

### NRCS Documentation Review:

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE: E328P: Low Nitrogen Requirement Annual Crop Rotation**

**Conservation Practice: E328 – Conservation Crop Rotation**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement is to reduce fertilizer N application, decrease nitrates leaching potential to the groundwater, maintain soil organic matter, and slow the effects of soil acidification. This is accomplished by replacing high N-requirement annual crops with low N-requirement annual crops.

*Important considerations:*

- Alternate crops with different nitrogen requirements. Important cash crops such as cotton, corn, peanuts, and small grains such as wheat, rye, oats, barley, and triticale grown in Alabama have different nutritional needs. Crops such as oats or barley are low nitrogen requirement annual crops compared to wheat. Others such as rye are good at scavenging unused nitrogen from the soil. Rotate the high N-requirement annual crops such as wheat with low N-requirement annual small cereals such as oats or annual legume crops. Rotate crops such as corn and grain sorghum that heavily use nitrogen with crops such as soybean. Legumes are efficient scavengers of soil nitrate and can substantially reduce soil nitrate levels after corn.
- Notice that small grains almost always yield better following another crop such as annual legume crops than when following other small grains.
- Use minimum two different annual crops planted sequentially on the same field.
- A Soil Conditioning Index (SCI) value of greater than or equal to zero required and maintain sufficient residues on the soil surface to prevent potential erosion issues.
- Use the current NRCS wind and water erosion prediction technologies to calculate a Soil Conditioning Index (SCI) value and Residue Requirements. Use the SCI to help you assess the effect of management choices on soil organic matter (SOM) dynamics, but do not expect it to replace direct measures of SOM, or evaluations of other aspects of soil quality. Follow the guide to using the soil conditioning index at: [Getting started \(usda.gov\)](https://www.usda.gov/soil-conditioning-index).
- Use Alabama Cooperative Extension guidance to determine nitrogen requirements of each crop. [AlabamaRowCropsPDF\\_final.pdf \(aces.edu\)](https://aces.edu/AlabamaRowCropsPDF_final.pdf)

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- The current and a suggested planned annual crop rotation,
- Notify NRCS of any planned changes in crops, crop rotation, or field operations to verify the planned system meets the enhancement criteria,
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



**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.

E338A – Strategically planned, patch burning for grazing distribution and wildlife habitat	July 2020	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

- 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 0.60 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:

- Y Prior to implementation, obtain a written grazing plan with guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand and clearly identify the wildlife species of concern for the area that includes a Wildlife Habitat Evaluation Guide.
- Y 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.
- Y During implementation, keep grazing/herd in/out records,
- Y During implementation, keep prescribed burn documentation such as date, weather conditions, etc.
- Y 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:

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



# CONSERVATION STEWARDSHIP PROGRAM

Y After implementation, verify the completed and certified Wildlife Habitat Evaluation Guide (WHEG) has a total score after implementation of equal or greater than 0.60.

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

**ALABAMA – E338A Strategically planned, patch burning for  
grazing distribution and wildlife habitat**

-Suitable only for native warm-season grass stands in pasture or silvopasture



**CONSERVATION ENHANCEMENT ACTIVITY**

**E338B**

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

**Short-interval burns to promote a healthy herbaceous plant community**

**Conservation Practice 338: Prescribed Burning**

**APPLICABLE LAND USE: Forest**

**RESOURCE CONCERN: Animals, Plants**

**ENHANCEMENT LIFE SPAN: 1 Year**

**Enhancement Description:**

The controlled use of fire is applied in a forest to restore fire-adapted plants and forage while improving wildlife habitat, wildlife food supply, and reducing the risk of damage from intense, severe wildfires. The ideal interval between prescribed burns is not often achieved. To improve the effectiveness of prescribed burning, the frequency of prescribed burning is increased appropriately, for a specified time period, to help restore ecological conditions in forests and woodlands. Short return interval prescribed burning is used to regenerate desirable tree species, improve the condition of fire-adapted plants and native herbaceous vegetation, improve wildlife food supply and forage quantity and quality, create wildlife habitat (snags and den/cavity trees), limit encroachment of competing vegetation including non-native species, and reduce the future risk of damage from intense, severe wildfires.

**Criteria:**

- States will apply general criteria from the NRCS National Conservation Practice Standard Prescribed Burning (Code 338) as listed below, and additional criteria as required by the NRCS State Office.
- Update the Prescribed Burning Plan (Conservation Activity 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.

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

- Assess the need for pre-treatment of vegetation and fuels, and for application of complementary NRCS Conservation Practice Standards such as Fuel Break (Code 383), Firebreak (Code 394), and Woody Residue Treatment (Code 384).
- Apply to sites where prescribed burning has previously been implemented at longer intervals than recommended to maintain the desired plant community, and where burn frequency must be increased to achieve the objectives listed in the enhancement description.
- The prescribed burning frequency will be increased (i.e., the burn interval will be reduced) from the previous regimen to an interval appropriate for the target plant community.
- Assess the existing fuel load using appropriate tools and methods for the geographic area.
- If invasive plants are present, utilize methods and timing that will prevent or control their spread.
- A written burn plan must be developed, and all necessary approvals secured prior to conducting a prescribed burn. The plan will include the following components at a minimum:
  - The objectives of the burn and the expected post-burn conditions.
  - Maps, images and/or descriptions of the proposed burn area and any associated or adjacent smoke sensitive areas.
  - Inventory of available fuels.
  - Required weather and fuel conditions under which the burn will be conducted.
  - Firing sequence and methods.
  - List of equipment and personnel needed and job assignments.
  - Any pre-burn preparation needed to safely and effectively conduct the prescribed burn.
  - List of appropriate authorities, agencies, departments, individuals, and facilities to be contacted and necessary signatures of approval.
  - Checklist for a post-burn evaluation.

### **Burning criteria**

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



### Grazing criteria

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

## CONSERVATION STEWARDSHIP PROGRAM





# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements:

Participant will:

- Prior to implementation, identify sites where at least one application of prescribed burning was implemented at longer burn intervals (i.e., insufficient frequency) than recommended for the target plant community by an existing prescribed burn plan or other habitat management plan. (NRCS will provide technical assistance, as needed)
- Prior to implementation, identify and document those sites in need of restoration of fire-adapted vegetative communities and forages where increased burn frequency will achieve the objectives listed in the enhancement description. (NRCS will provide technical assistance, as needed)
  - If grazing is used in combination with prescribed burning to manage understory vegetation, develop or update a grazing plan prior to implementation to guide the frequency and duration of grazing periods in accordance with the objectives of the enhancement description. Provide a copy to NRCS.
- Prior to implementation, assess the existing fuel load using appropriate tools and methods for the geographic area. Determine the need for pre-treatment of the vegetation and fuels to facilitate a desired fire intensity to achieve the enhancement objectives. Use complimentary practices as needed, such as NRCS Conservation Practice Standards Fuel Break (Code 383), Firebreak (Code 394) and Woody Residue Treatment (Code 384) to achieve appropriate conditions. (NRCS will provide technical assistance, as needed.)
- Prior to implementation, acquire a written burn plan for the enrolled land use acres that meets the enhancement criteria and any additional state NRCS requirements. Provide to NRCS for approval.
- Prior to implementation of a prescribed burn, acquire all necessary approvals and permits (local, state, federal as applicable).
- During implementation, and prior to ignition of each prescribed burn, acquire a current fire weather forecast and ensure all weather conditions are within those prescribed in the written burn plan. If conditions are not within prescription, postpone burn.
- During implementation, and prior to ignition of any prescribed burn, notify NRCS to confirm NRCS verification for any planned changes will meet NRCS or State required enhancement criteria.
- During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)



## CONSERVATION STEWARDSHIP PROGRAM

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

NRCS will:

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





**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



Alabama Supplemental Guidance for CSP Enhancement

2020 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION

ENHANCEMENT NUMBER AND TITLE:

**E338B -Short-interval burn**

**Conservation Practice 338: Prescribed Burning**

**BRIEF DESCRIPTION OF ENHANCEMENT: Increase the frequency of prescribed burning to help restore ecological conditions in forests and woodlands.**

In Alabama we require (2) burns within the 5 year contract period for this enhancement to be fully implemented. For this to be achieved it is advisable to strive to complete the first burn in year one and the second burn in year four.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A NARRATIVE DESCRIPTION OF THE BURN METHOD
- MAPS OF THE AREA or LOCATION(S) PRESCRIBED BURNED
- LIST ACRES BURNED BY STAND
- COMPLETED POST-BURN EVALUATION
- PHOTO DOCUMENTATION OF ENHANCEMENT
- DATES OF COMPLETED BURNS
- ALL OF THE ABOVE LISTED CHECK BOX INFORMATION CAN AND SHOULD BE INCLUDE IN THE WRITTEN BURN PLAN AND MUST BE SUBMITTED FOR SUCCESSFUL COMPLETION OF THIS ENHANCEMENT

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after each burn is completed.

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CSP Participant Name

---

Date



## 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.



## CONSERVATION STEWARDSHIP PROGRAM

- 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:
  - 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.
- 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

## Alabama Supplemental Guidance for CSP Enhancement

### 2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION

ENHANCEMENT NUMBER AND TITLE:

#### **E338C – Sequential Patch Burning**

#### **Conservation Practice 338: Prescribed Burning**

BRIEF DESCRIPTION OF ENHANCEMENT: **Burn a portion of the area each year for three consecutive years.**

**Eligible Acreage:** 1)Thinned pine 2)Thinned mixed pine-hardwood stands 3)Young longleaf/shortleaf (as long as stands are burned prior to age of canopy closure)

Three (3) burns are required in sequential years within the 5 year contract period for this enhancement to be fully implemented. For this to be achieved it is advisable to strive to complete the first burn during the first winter of the contract.

The total acres to be burned under this enhancement shall be broken into 3 treatment areas for the annual burns. Each treatment area can vary in size and shall be designated based on man-made firebreaks, natural firebreaks and roads that can be used as firebreaks. Treatment areas can include smaller sub-blocks (odd corners, etc) as small as one-half acre. A payment will be made each year the practice is implemented for the actual acres burned.

A written burn plan is required for acres to be treated under this enhancement.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A NARRATIVE DESCRIPTION OF THE BURN METHOD
- MAPS OF THE AREA or LOCATION(S) PRESCRIBED BURNED
- LIST ACRES BURNED BY STAND
- COMPLETED POST-BURN EVALUATION
- PHOTO DOCUMENTATION OF ENHANCEMENT
- DATES OF COMPLETED BURNS
- ALL OF THE ABOVE LISTED CHECK BOX INFORMATION SHOULD BE INCLUDED IN THE WRITTEN BURN PLAN AND MUST BE SUBMITTED FOR SUCCESSFUL COMPLETION OF THIS ENHANCEMENT

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after each burn is completed.

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CSP Participant Name

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Date



## CONSERVATION ENHANCEMENT ACTIVITY

### E340A

# CONSERVATION STEWARDSHIP PROGRAM

## Cover crop to reduce soil erosion

### Conservation Practice 340: Cover Crop

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

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

### Enhancement Description

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

### Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (**REFER TO STATE SPECIFIC LISTS**). Determine method and timing of termination to meet grower's objective and current NRCS Cover Crop Termination Guidelines.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, or companion-planted or relay-planted into production crops. Select species and planting dates that will not compete with production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest or graze cover crop.





## CONSERVATION STEWARDSHIP PROGRAM

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



# CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

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

#### Current Management Rotation Including Cover Crop

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

#### Current Field Operations for each crop

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

#### Planned Management Rotation Including Cover Crop

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



# CONSERVATION STEWARDSHIP PROGRAM

### Planned Field Operations for each crop

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

### Cover Crop Mix and Seeding Rate

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

### Establishment and Management Considerations:

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

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



# CONSERVATION STEWARDSHIP PROGRAM

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

**NRCS will:**

- As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, use information provided from the participant to calculate the management sheet and rill erosion from water and wind erosion value for each field using current NRCS water erosion prediction technologies.

**Benchmark Management Soil Loss = \_\_\_\_\_ tons/acre/year**

**Planned Management Soil Loss = \_\_\_\_\_ tons/acre/year**

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

**Applied Management Soil Loss = \_\_\_\_\_ tons/acre/year**



**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



## ALABAMA – E340A Supplement- Cover crop to reduce soil erosion

### Requirements:

- Applicable where cover crops have not been planted in the past. Cover crops must be grown during all non-crop periods and shall not be harvested or grazed.
- Crops planted following the cover crop must be no-tilled or strip-tilled.
- Calculate before and after soil loss for the field. There must be a reduction in soil loss and must not exceed the soil loss tolerance level (T).
- increase seeding rates by 30% if aurally applied.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production. Do not terminate greater than 30 days prior to crop planting. Refer to Alabama Guide Sheet AL340A, Cover Crop Termination Timing.
- Minimum requirement is one small grain but mixes that include a small grain may be used. Radish provides excellent early fall growth if planted timely. Ryegrass may not be used.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

	Minimum lbs./ac
1 species-Small grain*	65 lbs.
2 species-small grain and clover	50 lbs. + 10 lbs.
2 species-small grain and brassica	50 lbs. + 3 lbs.
3 species-small grain, clover, brassica	40 lbs. + 10 lbs. + 3 lbs.

\*small grains- rye, wheat, oats, barley, and triticale

**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	90-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.



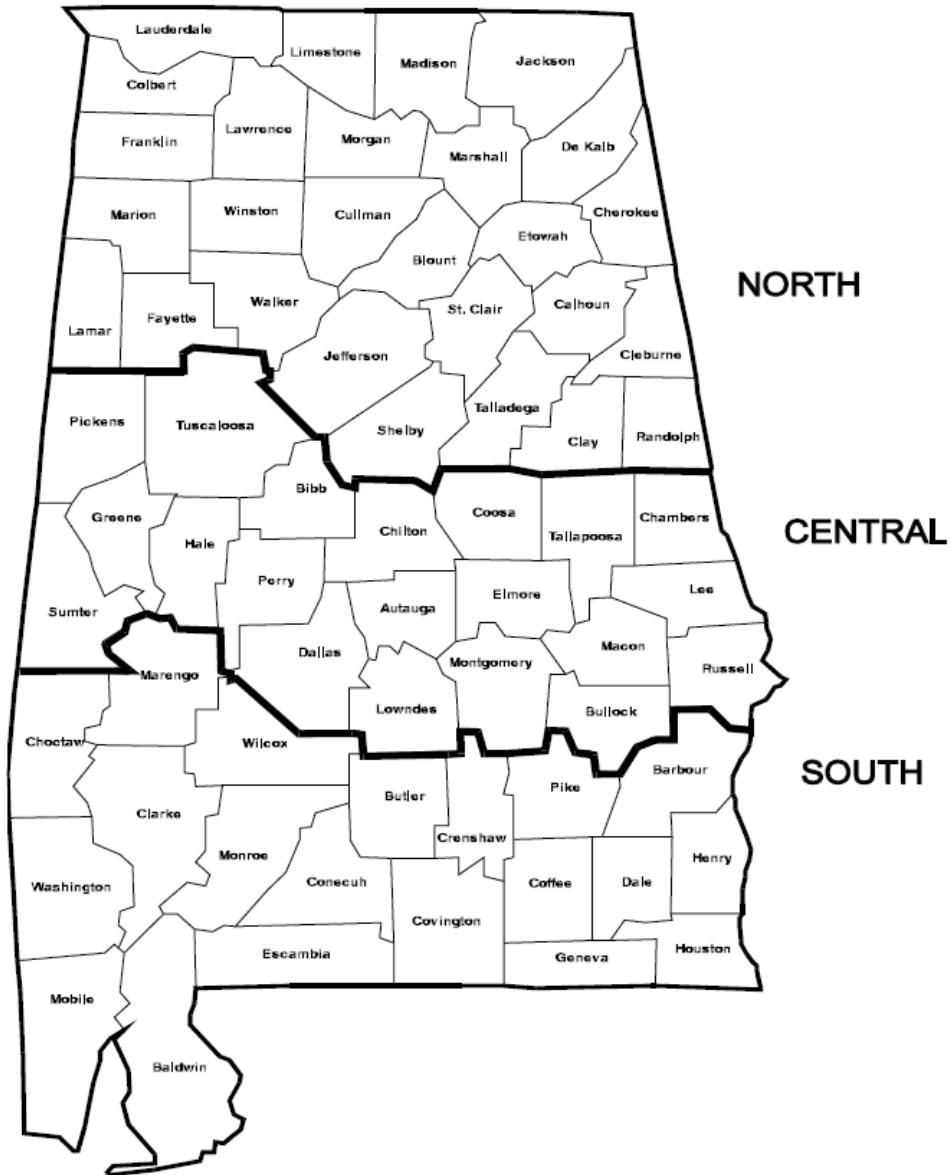
**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.

**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Do not reduce the seeding rates of legumes when used in the mixtures.
- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.

## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES





**CONSERVATION ENHANCEMENT ACTIVITY**

**E340B**

**CONSERVATION STEWARDSHIP PROGRAM**

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

**Conservation Practice 340: Cover Crop**

**APPLICABLE LAND USE: Crop (Annual & Mixed)**

**RESOURCE CONCERN: Soil**

**ENHANCEMENT LIFE SPAN: 1 Year**

**Enhancement Description**

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

**Criteria**

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

E340B - Intensive cover cropping to increase soil health and soil organic matter content	July 2019	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

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



# CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

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

#### Current Management Rotation

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

#### Current Field Operations for each crop

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

#### Planned Management Rotation Including Cover Crop

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



# CONSERVATION STEWARDSHIP PROGRAM

### Planned Field Operations for each crop

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

### Cover Crop Mix and Seeding Rate

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

### Establishment and Management Considerations:

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

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



# CONSERVATION STEWARDSHIP PROGRAM

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

**NRCS will:**

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

**Benchmark Management SCI = \_\_\_\_\_, Benchmark Management OM sub factor = \_\_\_\_\_**

**Planned Management SCI = \_\_\_\_\_, Planned Management OM sub factor = \_\_\_\_\_**

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

**Applied Management SCI = \_\_\_\_\_, Applied Management OM sub factor = \_\_\_\_\_**

E340B - Intensive cover cropping to increase soil health and soil organic matter content	July 2019	Page   5
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**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name: \_\_\_\_\_ Contract Number: \_\_\_\_\_

Total Acres Applied: \_\_\_\_\_ Fiscal Year Completed: \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



E340B - Intensive cover cropping to increase soil health and soil organic matter content	July 2019	Page   6
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**ALABAMA – E340B Supplement- Intensive cover cropping to increase soil health and soil organic matter content**

**Requirements:**

- Applicable where two species or less of cover crops have been planted in the past. Cover crops must be grown during all non-crop periods and shall not be harvested or grazed.
- Crops planted following the cover crop must be no-tilled or strip-tilled.
- Calculate before and after soil loss for the field. There must be a reduction in soil loss and must not exceed the soil loss tolerance level (T). SCI must be zero or higher.
- increase seeding rates by 30% if aerially applied.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production. Do not terminate greater than 30 days prior to crop planting. Refer to Alabama Guide Sheet AL340A, Cover Crop Termination Timing.
- Minimum requirement is a **three species mix** that includes a small grain, legume, and brassica. Radish provides excellent early fall growth if planted timely. Ryegrass may not be used. Austrian winter pea does not germinate well unless drilled. Cover crop should be at least 24 inches tall prior to termination except prior to corn planting.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

	Minimum lbs./ac
Examples	
3 species-small grain, crimson clover, radish	40 lbs. + 10 lbs. + 3 lbs.
3 species-small grain, vetch, radish	40 lbs. + 12 lbs. + 3 lbs.
3 species-small grain, crimson clover, Turnip	40 lbs. + 10 lbs. + 1.5 lbs.
3 species-small grain, winter pea, radish	40 lbs. + 25 lbs. + 3 lbs.

\*small grains- rye, wheat, oats, barley, and triticale  
 Legumes-crimson clover, vetch, Austrian winter pea  
 Brassicas-daikon radish, turnip, rape

**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	90-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.
<b>Brassicas</b> <b>Daikon radish</b> (Tillage radish)	5	0.25 – 0.5	Aug 30	Sept 15	Sept 20	Adapted to most soils.
<b>Rape/Canola</b>	5	0.25 – 0.75	Aug 15	Aug 30	Sept 15	Adapted to most soils.
<b>Turnip/Purple top</b>	5	0.25 – 0.75	Aug 20	Aug 30	Sept 15	Adapted to most soils.

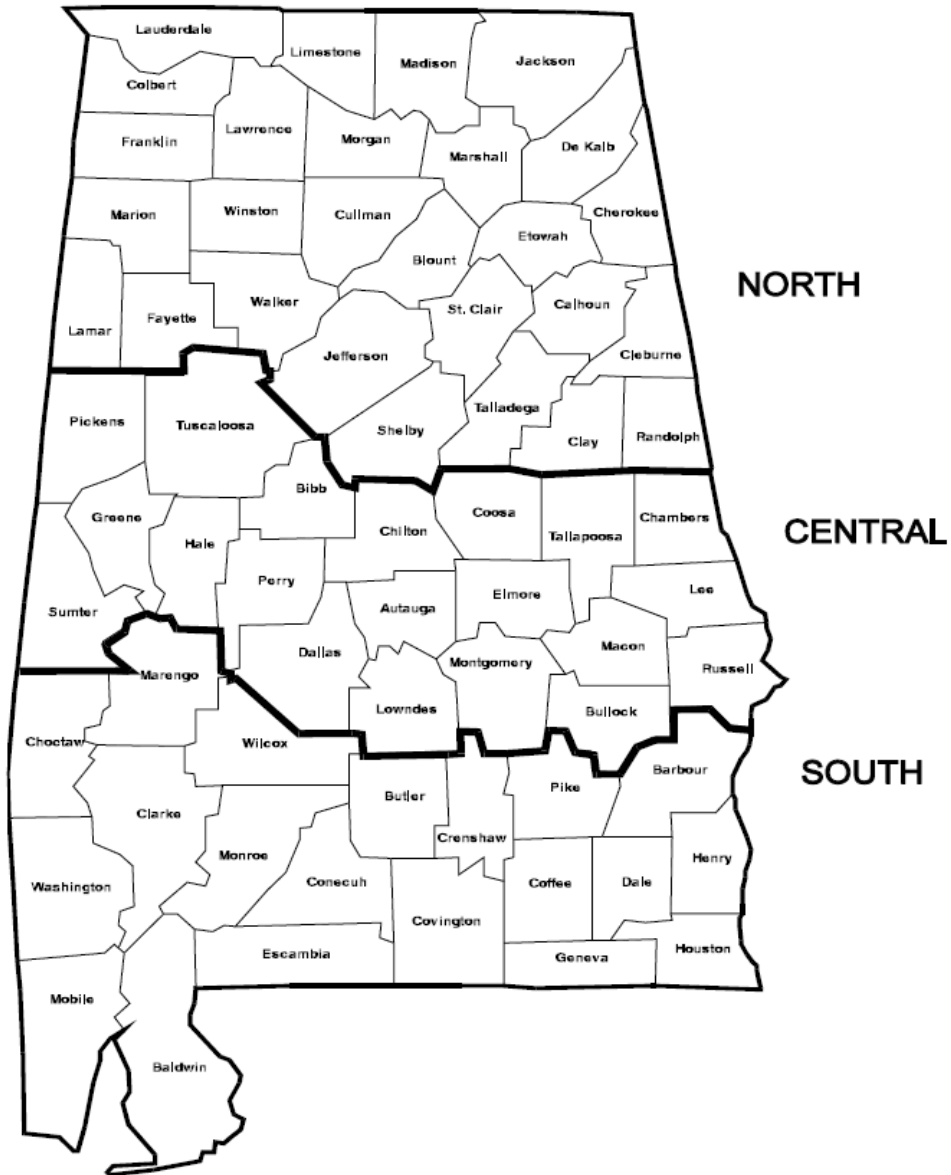
**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Reduce the

seeding rates of legumes by about 50% when used in the mixtures of three.

- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.

## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES





**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.

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# CONSERVATION STEWARDSHIP PROGRAM

- Cover crops may be established between successive production crops, or companion-planted or relay-planted into production crops. Select species and planting dates that will not compete with the production crop yield or harvest.
- Do not burn cover crop residue.
- Do not harvest the cover crop.
- If the specific rhizobium bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.
- Cover crop must provide soil coverage during all non-crop production periods to the maximum extent possible considering the cropping system, climate, and soils in the annual crop rotation. **(STATES SHALL PREPARE GUIDANCE FOR THEIR LOCAL CLIMATES AND CROPPING SYSTEMS)**
- The crop rotation, to include the cover crop species, shall consist of the four crop types: Cool Season Grass (CSG), Cool Season Broadleaves (CSB), Warm Season Grasses (WSG), and Warm Season Broadleaves (WSB). The multi-species cover crop mix must include at least 4 different species, of those 4 species at least two of them must be from one or more of the crop types needed to fill in the missing crop types in the crop rotation. The cover crop mix will increase diversity of the crop rotation.
- Planned crop rotation including cover crops, biomass produced, and associated management activities must achieve a management soil conditioning index (SCI) of zero or higher and results in a positive trend in the Organic Matter (OM) subfactor value over the life of the rotation.

**Additional criteria when livestock are included in the system:**

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

- A grazing plan must be developed to document livestock management. Plan must include at a minimum a forage estimate and livestock inventory for all fields implementing this

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## CONSERVATION STEWARDSHIP PROGRAM

enhancement that will be grazed. For soil health benefits, utilization by livestock must be less than 50% of available cover crop forage.

- Before cover crops are grazed, they must have produced enough biomass to allow for grazing while maintaining soil health benefits. Cover crops that are planted in late fall will not typically be well enough established, however if stands are adequate cover crops may be grazed in the spring prior to termination.
- Different cover crop species have varying tolerances to grazing; this should be taken into consideration when developing cover crop seeding specifications.
- Grazing shall not occur during wet soil conditions.
- Some pesticides have restrictions on grazing following application (up to 18 months). Refer to pesticide labels.

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# CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

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

#### Current Management Rotation

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

#### Current Field Operations for each crop

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

#### Planned Management Rotation Including Cover Crop

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



# CONSERVATION STEWARDSHIP PROGRAM

### Planned Field Operations for each crop

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

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

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

### Establishment and Management Considerations:

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



# CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, read and follow current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, if livestock are included in the system consider cover crop species tolerant to grazing.
- Prior to implementation, if livestock are included in the system develop a grazing plan which must document livestock management. Plan must include at a minimum a forage estimate and livestock inventory for all fields implementing this enhancement that will be grazed. For soil health benefits, utilization by livestock must be less than 50% of available cover crop forage.
- During implementation, cover crops must not be burned or harvested.
- During implementation, if livestock are included in the system maintain records of forage utilization.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document the applied Cover Crop for the contract period and provide to NRCS.
- After implementation, if livestock are included in the system provide grazing plan and forage utilization records to NRCS for review to verify additional criteria of the enhancement were met.

**NRCS will:**

- As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, use information provided from the participant to calculate the management Soil Conditioning Index (SCI) and Organic Matter (OM) sub factor value over the life of the rotation using current NRCS Soil Conditioning Index (SCI) procedure. Cover crop must increase SCI and OM sub factor from the current/benchmark condition and SCI

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# CONSERVATION STEWARDSHIP PROGRAM

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

**Benchmark Management SCI = \_\_\_\_\_, Benchmark Management OM sub factor = \_\_\_\_\_**

**Planned Management SCI = \_\_\_\_\_, Planned Management OM sub factor = \_\_\_\_\_**

- Prior to implementation, if livestock are included in the system verify a grazing plan has been developed.
- During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, then calculate SCI values to document that the applied rotation met the enhancement criteria.

**Applied Management SCI = \_\_\_\_\_, Applied Management OM sub factor = \_\_\_\_\_**

- After implementation, if livestock are included in the system review grazing plan and forage utilization records to verify additional criteria of the enhancement were met.

### **NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature                      Date

E340C - Use of multi-species cover crop to improve soil health and increase soil organic matter	July 2019	Page   7
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## ALABAMA – E340C Supplement- Use of multi-species cover crop to improve soil health and increase soil organic matter

### Requirements:

- Applicable where three species or less of cover crops have been planted in the past. Cover crops must be grown during all non-crop periods and shall not be harvested.
- Crops planted following the cover crop must be no-tilled or strip-tilled.
- Calculate before and after soil loss for the field to be planted to grass. There must be a reduction in soil loss and must not exceed the soil loss tolerance level (T). SCI must be zero or higher.
- increase seeding rates by 30% if aerially applied.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production. Do not terminate greater than 30 days prior to crop planting. Refer to Alabama Guide Sheet AL340A, Cover Crop Termination Timing.
- Minimum requirement is a **four species mix** that includes a small grain, legume, and brassica. Radish provides excellent early fall growth if planted timely. Ryegrass may not be used. Austrian winter pea does not germinate well unless drilled.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

	Minimum lbs./ac
Examples	
4 species- 2 small grain, crimson clover, radish	20 lbs. + 20 lbs. + 10 lbs. + 3 lbs.
4 species-small grain, vetch, radish, turnip	40 lbs. + 12 lbs. + 2 lbs. + 1 lb.
4 species-small grain, crimson clover, vetch, turnip	40 lbs. + 8 lbs.+ 10 lbs. + 1.0 lb.
4 species- 2 small grain, winter pea, radish	20 lbs. + 20 lbs.+ 20 lbs. + 2 lbs.

\*small grains- rye, wheat, oats, barley, and triticale  
 Legumes-crimson clover, vetch, Austrian winter pea  
 Brassicas-daikon radish, turnip, rape

### Additional criteria when livestock are included in the system

1. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock should be restricted from sensitive areas.
2. 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 typically will not be well enough established for grazing. Livestock dry matter needs will be

balanced with available forage without deficiency for the grazing period. The Forage/Animal Balance Worksheet will be completed to document. Utilization will be less than 50% of the available cover crop forage. Grazing should begin at 10 inches not to be grazed lower than 5 inches. Cattle must be removed to allow adequate time for regrowth before cover crop termination. Grazing shall not occur during wet conditions.

**3.** Livestock will be rotated to facilitate prescribed grazing. Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Electrified polywire should be used to create paddocks if livestock cannot be rotated out to permanent pasture frequently. Permanent pasture adjacent to cropland will be labeled on the conservation plan map.

**4.** Livestock shall be removed during periods of extended wet weather.

**5.** Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Grazing will be managed according to the Prescribed Grazing (528) Standard.

## Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

Pasture ID		Pasture acres	Forage type				
Soil test date		Lime/ Fertilizer rate	Lime/ Fertilizer type		Date applied		
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

Pasture ID		Pasture acres	Forage type				
Soil test date		Lime/ Fertilizer rate	Lime/ Fertilizer type		Date applied		
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						



**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	90-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.
<b>Brassicas</b> <b>Daikon radish</b> (Tillage radish)	5	0.25 – 0.5	Aug 30	Sept 15	Sept 20	Adapted to most soils.
<b>Rape/Canola</b>	5	0.25 – 0.75	Aug 15	Aug 30	Sept 15	Adapted to most soils.
<b>Turnip/Purple top</b>	5	0.25 – 0.75	Aug 20	Aug 30	Sept 15	Adapted to most soils.

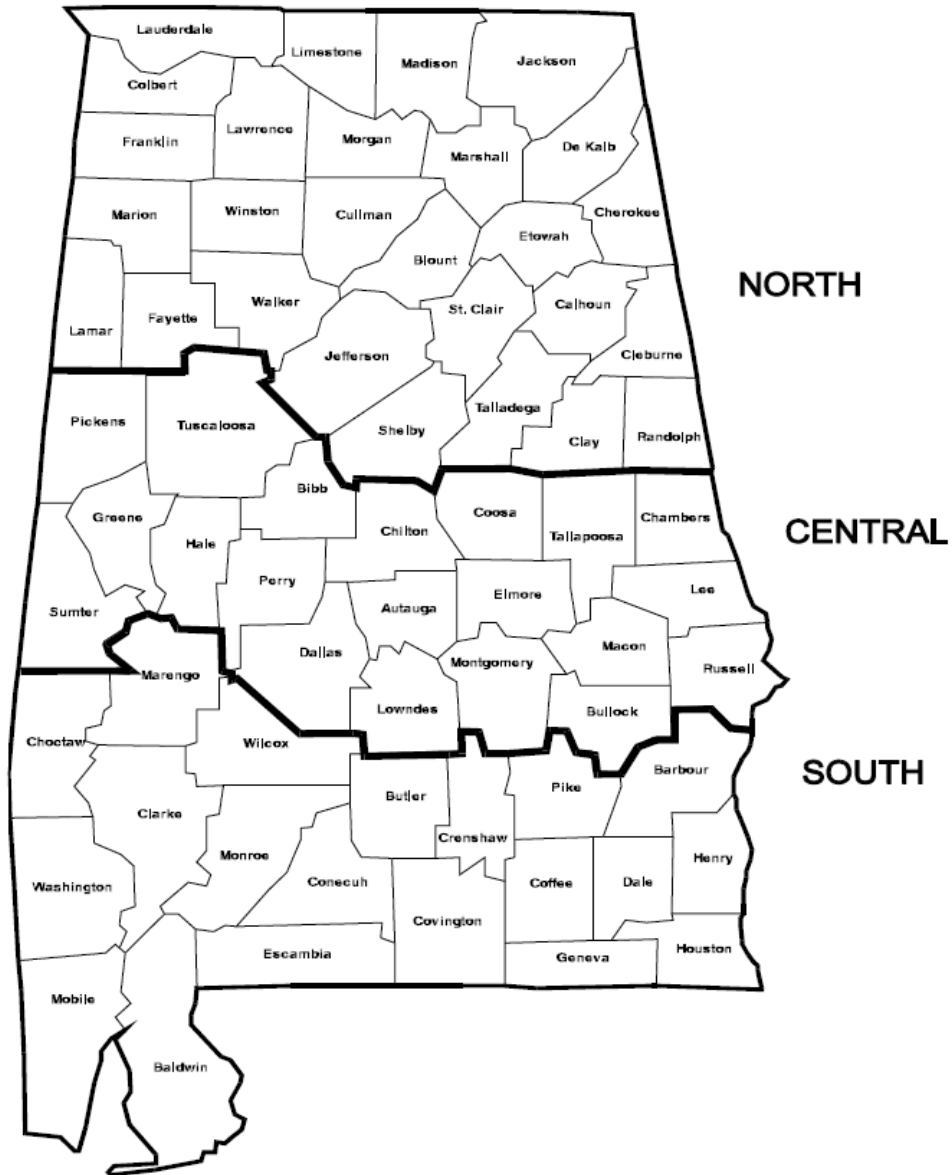
**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Reduce the

seeding rates of legumes by about 50% when used in the mixtures of three.

- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.

## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES





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

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## CONSERVATION STEWARDSHIP PROGRAM

achieve the purpose of the cover crop without negatively impacting the production crop yield or harvest.

- Do not burn cover crop residue.
- Do not harvest the cover crop.
- If the specific rhizobium bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.
- Cover crop must provide soil coverage during all non-crop production periods to the maximum extent possible considering the cropping system, climate, and soils in the annual crop rotation. **(STATES SHALL PREPARE GUIDANCE FOR THEIR LOCAL CLIMATES AND CROPPING SYSTEMS.)** *Minimum 2 species cover crop mix* will be selected based on producing higher volumes of organic material and root mass to maintain or increase soil organic matter.
- Planned crop rotation including cover crop biomass production and associated management activities must achieve a management soil conditioning index (SCI) of zero or higher and result in a positive trend in the Organic Matter (OM) sub factor value over the life of the rotation.
- Cover crops are replanted annually.
- Grow cover crops on a minimum of 60% of the field area year annually.



# CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

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

#### Current Management Rotation

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

#### Current Field Operations for each crop

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

#### Planned Management Rotation Including Cover Crop

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





# CONSERVATION STEWARDSHIP PROGRAM

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

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

### Establishment and Management Considerations:

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

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



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS will:**

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

**Benchmark Management SCI = \_\_\_\_\_ Benchmark Management OM sub factor = \_\_\_\_\_**

**Planned Management SCI = \_\_\_\_\_ Planned Management OM sub factor = \_\_\_\_\_**

- Prior to implementation, verify the cover crop mix includes at least 2 species of cover crop.
- Prior to implementation, verify the development of a map showing the area(s) to be planted to cover crop.
- Prior to implementation, verify cover crop will cover at least 60% of the field area each year.
- During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, then calculate SCI values to document that the applied rotation met the enhancement criteria.

**Applied Management SCI = \_\_\_\_\_, Applied Management OM sub factor = \_\_\_\_\_**

E340D - Intensive orchard/vineyard floor cover cropping to increase soil health	July 2019	Page   5
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**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature      Date



E340D - Intensive orchard/vineyard floor cover cropping to increase soil health	July 2019	Page   6
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## ALABAMA – E340D Supplement- Intensive orchard/vineyard floor cover cropping to increase soil health

### Requirements:

- Applicable where additional cover is needed and cover crops have not been planted in the past. Cover crops must not be harvested, burned, or grazed. Warm-season covers may be necessary following cool-season covers with legumes (which decompose rapidly).
- Calculate before and after soil loss for the field. There must be a reduction in soil loss and must not exceed the soil loss tolerance level (T). SCI must be zero or higher.
- increase seeding rates by 30% if aerially applied.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production.
- Minimum requirement is a **two species mix** that includes a small grain, legume, or brassica. Radish provides excellent early fall growth if planted timely. Ryegrass may not be used. Austrian winter pea does not germinate well unless drilled. Cover crop should be at least 24 inches tall prior to termination.
- Insect and rodent pest management must be considered and contingency plans should be developed.
- Nutrient management should be evaluated. Additional nitrogen may be fixed or released depending on the C:N ratio of the selected cover mix.
- Termination of the cover crop may be problematic due to the height of the cover and proximity of the orchard crop. This enhancement should not be used unless proper equipment is available or the cover crop is allowed to mature and naturally senesce.
- Cover crops must be grown on at least 60% of the field area annually.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

(Increase rates by 30% if broadcast)	Minimum lbs./ac
Examples	
2 species-small grain, crimson clover	50 lbs. + 10 lbs.
2 species-small grain, crimson clover, (when greater legume ratio is desired)	25 lbs. + 15 lbs.
2 species- crimson clover, radish	17 lbs. + 4 lbs.
3 species-small grain, crimson clover, radish	40 lbs. + 10 lbs. + 3 lbs.

\*small grains- rye, wheat, oats, barley, and triticale  
 Legumes-crimson clover, vetch, Austrian winter pea  
 Brassicas-daikon radish, turnip, rape

**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	90-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.
<b>Brassicas</b> <b>Daikon radish</b> (Tillage radish)	5	0.25 – 0.5	Aug 30	Sept 15	Sept 20	Adapted to most soils.
<b>Rape/Canola</b>	5	0.25 – 0.75	Aug 15	Aug 30	Sept 15	Adapted to most soils.
<b>Turnip/Purple top</b>	5	0.25 – 0.75	Aug 20	Aug 30	Sept 15	Adapted to most soils.

**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Reduce the

seeding rates of legumes by about 50% when used in the mixtures of three.

- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.



## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES





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.

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# CONSERVATION STEWARDSHIP PROGRAM

- Cover crops may be established between successive production crops, or companion-planted or relay-planted into production crops. Select species and planting dates that will not compete with the production crop yield or harvest.
- Do not burn cover crop residue. Do not harvest the cover crop.
- If the specific rhizobium bacteria for the selected legume are not present in the soil, treat the seed with the appropriate inoculum at the time of planting.
- Cover crop must provide soil coverage during all non-crop production periods to the maximum extent possible considering the cropping system, climate, and soils in the annual crop rotation. **(STATES SHALL PREPARE GUIDANCE FOR THEIR LOCAL CLIMATES AND CROPPING SYSTEMS)**
- 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.*

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## CONSERVATION STEWARDSHIP PROGRAM

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



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

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

### Current Management Rotation

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

### Current Field Operations for each crop

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

### Planned Management Rotation Including Cover Crop

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



# CONSERVATION STEWARDSHIP PROGRAM

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

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

### Establishment and Management Considerations:

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

### Soil Health Assessment:

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

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



# CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, if livestock are included in the system develop a grazing plan which must document livestock management. Plan must include at a minimum a forage estimate and livestock inventory for all fields implementing this enhancement that will be grazed. For soil health benefits, utilization by livestock must be less than 50% of available cover crop forage.
- During implementation, cover crops must not be burned or harvested.
- During implementation, if livestock are included in the system maintain records of forage utilization.
- During implementation, notify NRCS of any planned changes in crops, crop rotation, or unharvested areas to verify the planned system meets the enhancement criteria.
- After implementation, if changes to the cover crop and crop rotation were made, complete the tables above to document the applied Cover Crop for the contract period and provide to NRCS.
- After implementation, if livestock are included in the system provide grazing plan and forage utilization records to NRCS for review to verify additional criteria of the enhancement were met.
- After implementation, provide soil health assessment results and any documentation of changes made to NRCS for review to verify implementation of the enhancement.

**NRCS will:**

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

**Benchmark Management SCI = \_\_\_\_\_, Benchmark Management OM sub factor = \_\_\_\_\_**

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# CONSERVATION STEWARDSHIP PROGRAM

Planned Management SCI = \_\_\_\_\_,

Planned Management OM sub factor = \_\_\_\_\_

- Prior to implementation, if livestock are included in the system verify a grazing plan has been developed.
- During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, then calculate SCI values to document that the applied rotation met the enhancement criteria.

Applied Management SCI = \_\_\_\_\_, Applied Management OM sub factor = \_\_\_\_\_

- After implementation, if livestock are included in the system review grazing plan and forage utilization records to verify additional criteria of the enhancement were met.
- After implementation, review soil health assessment results and any documentation of changes made to verify implementation of the enhancement.

### **NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature                      Date

E340E - Use of soil health assessment to assist with development of cover crop mix to improve soil health	July 2019	Page   7
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**ALABAMA – E340E Supplement- Use of soil health assessment to assist with development of cover crop mix to improve soil health**

**Requirements:**

- Applicable where three species or less of cover crops have been planted in the past and a soil health assessment has not been completed. Cover crops must be grown during all non-crop periods and shall not be harvested.
- Complete soil health assessment in a minimum of the first and third years from the initial year planned in addition to planting a cover crop. Must begin no later than the third year of the contract. A cover crop must be planted all three years. The soil health assessment (such as the Haney test, others may be approved by the state agronomist) should be completed early enough in the year before planting the cover crop to allow time for evaluation of mixes and ordering seed. The final soil health assessment should be taken after termination of the third cover crop. The minimum number of tests is one per field or at least every 40 acres or where management practices are significantly different.
- Crops planted following the cover crop must be no-tilled or strip-tilled.
- Calculate before and after soil loss for the field. There must be a reduction in soil loss and must not exceed the soil loss tolerance level (T). SCI must be zero or higher and have a positive trend in the organic matter subfactor over the life of the rotation.
- increase seeding rates by 30% if aurally applied.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production. Do not terminate greater than 30 days prior to crop planting. Refer to Alabama Guide Sheet AL340A, Cover Crop Termination Timing.
- Minimum requirement is a **four species mix** that includes a small grain, legume, and brassica. Radish provides excellent early fall growth if planted timely. Ryegrass may not be used. Austrian winter pea does not germinate well unless drilled.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

	Minimum lbs./ac
<b>Examples</b>	
4 species- 2 small grain, crimson clover, radish	20 lbs. + 20 lbs. + 10 lbs. + 3 lbs.
4 species-small grain, vetch, radish, turnip	40 lbs. + 12 lbs. + 2 lbs. + 1 lb.
4 species-small grain, crimson clover, vetch, turnip	40 lbs. + 8 lbs.+ 10 lbs. + 1.0 lb.
4 species- 2 small grain, winter pea, radish	20 lbs. + 20 lbs.+ 20 lbs. + 2 lbs.

\*small grains- rye, wheat, oats, barley, and triticale  
 Legumes-crimson clover, vetch, Austrian winter pea  
 Brassicas-daikon radish, turnip, rape

### **Additional criteria when livestock are included in the system**

**1.** Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock should be restricted from sensitive areas.

**2.** 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 typically will not be well enough established for grazing. Livestock dry matter needs will be balanced with available forage without deficiency for the grazing period. The Forage/Animal Balance Worksheet will be completed to document. Utilization will be less than 50% of the available cover crop forage. Grazing should begin at 10 inches not to be grazed lower than 5 inches. Cattle must be removed to allow adequate time for regrowth before cover crop termination. Grazing shall not occur during wet conditions.

**3.** Livestock will be rotated to facilitate prescribed grazing. Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Electrified polywire should be used to create paddocks if livestock cannot be rotated out to permanent pasture frequently. Permanent pasture adjacent to cropland will be labeled on the conservation plan map.

**4.** Livestock shall be removed during periods of extended wet weather.

**5.** Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Grazing will be managed according to the Prescribed Grazing (528) Standard.

## Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

Pasture ID		Pasture acres	Forage type				
Soil test date		Lime/ Fertilizer rate	Lime/ Fertilizer type		Date applied		
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

Pasture ID		Pasture acres	Forage type				
Soil test date		Lime/ Fertilizer rate	Lime/ Fertilizer type		Date applied		
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	90-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.
<b>Brassicas</b> <b>Daikon radish</b> (Tillage radish)	5	0.25 – 0.5	Aug 30	Sept 15	Sept 20	Adapted to most soils.
<b>Rape/Canola</b>	5	0.25 – 0.75	Aug 15	Aug 30	Sept 15	Adapted to most soils.
<b>Turnip/Purple top</b>	5	0.25 – 0.75	Aug 20	Aug 30	Sept 15	Adapted to most soils.

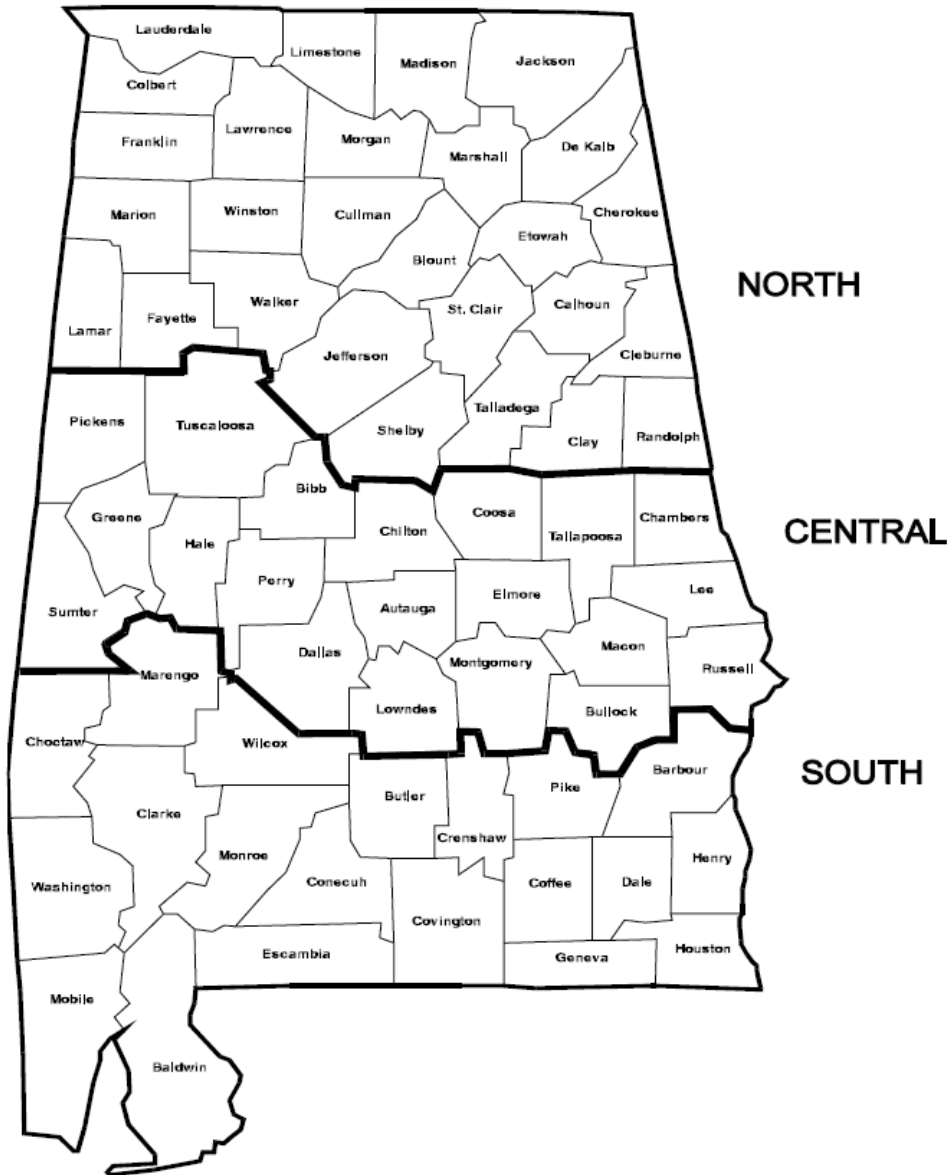
**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Reduce the

seeding rates of legumes by about 50% when used in the mixtures of three.

- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.

## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES







## CONSERVATION ENHANCEMENT ACTIVITY

### E340F

# CONSERVATION STEWARDSHIP PROGRAM

## Cover crop to minimize soil compaction

### Conservation Practice 340: Cover Crop

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

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 1 Year

### Enhancement Description

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

### Criteria

- Plant species, seedbed preparation, seeding rates, seeding dates, seeding depths, fertility requirements, and planting methods will be consistent with applicable local criteria and soil/site conditions (**REFER TO STATE SPECIFIC LISTS**).
- Determine method and timing of cover crop termination to meet grower's objective and current NRCS Cover Crop Termination Guidelines.
- Select species that are compatible with other components of the cropping system.
- Ensure herbicides used with crops are compatible with cover crop selections.
- Cover crops may be established between successive production crops, companion-planted or relay-planted into production crops. Select species and planting dates that will not compete with production crop yield or harvest.

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

- Do not burn cover crop residue.
- Do not harvest or graze cover crop.
- If specific rhizobium bacteria for selected legumes are not present in the soil, treat seed with appropriate inoculum at time of planting.
- Select a mix of cover crop species that includes plants with both fibrous root and deep rooted systems. Fibrous rooted cover crop species are essential to treat and prevent both near surface (0-4") and deep (>4") soil compaction and deep rooted species to break up deep compacted soils.





# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

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

### **Planned Management Rotation Including Cover Crop**

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

### **Planned Field Operations for each crop**

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

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

- Deep rooted crop types must have documented ability to alleviate compaction.

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



# CONSERVATION STEWARDSHIP PROGRAM

## Establishment and Management Considerations:

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

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

### NRCS will:

- As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- Prior to implementation, verify the cover crop mix includes both fibrous root and deep rooted systems.
- During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.



# CONSERVATION STEWARDSHIP PROGRAM

- After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, document that the applied rotation met the enhancement criteria.

**NRCS Documentation Review:**

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

Participant Name: \_\_\_\_\_ Contract Number: \_\_\_\_\_

Total Acres Applied: \_\_\_\_\_ Fiscal Year Completed: \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## ALABAMA – E340F Supplement- Cover crop to minimize compaction

### Requirements:

- Applicable where a single species or no cover crops have been planted in the past. Cover crops must be grown during all non-crop periods and shall not be harvested or grazed.
- Crops planted following the cover crop must be no-tilled or strip-tilled.
- Calculate before and after soil loss for the field.
- increase seeding rates by 30% if aerially applied.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production. Do not terminate greater than 30 days prior to crop planting. Refer to Alabama Guide Sheet AL340A, Cover Crop Termination Timing.
- Minimum requirement is a **two species mix** that includes a **small grain and brassica**. Radish provides excellent early fall growth if planted timely. Ryegrass may not be used. Cover crop should be at least 24 inches tall prior to termination except prior to corn planting.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

Mixes that include both fibrous and deep rooted crops	Minimum lbs./ac
Examples	
2 species-small grain, radish	50 lbs. + 3 lbs.
2 species-small grain, turnip	50 lbs. + 1.5 lbs.

\*small grains- rye, wheat, oats, barley, and triticale  
Legumes-crimson clover, vetch, Austrian winter pea  
Brassicas-daikon radish, turnip, rape

**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	90-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.



**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.
<b>Brassicas</b> <b>Daikon radish</b> (Tillage radish)	5	0.25 – 0.5	Aug 30	Sept 15	Sept 20	Adapted to most soils.
<b>Rape/Canola</b>	5	0.25 – 0.75	Aug 15	Aug 30	Sept 15	Adapted to most soils.
<b>Turnip/Purple top</b>	5	0.25 – 0.75	Aug 20	Aug 30	Sept 15	Adapted to most soils.

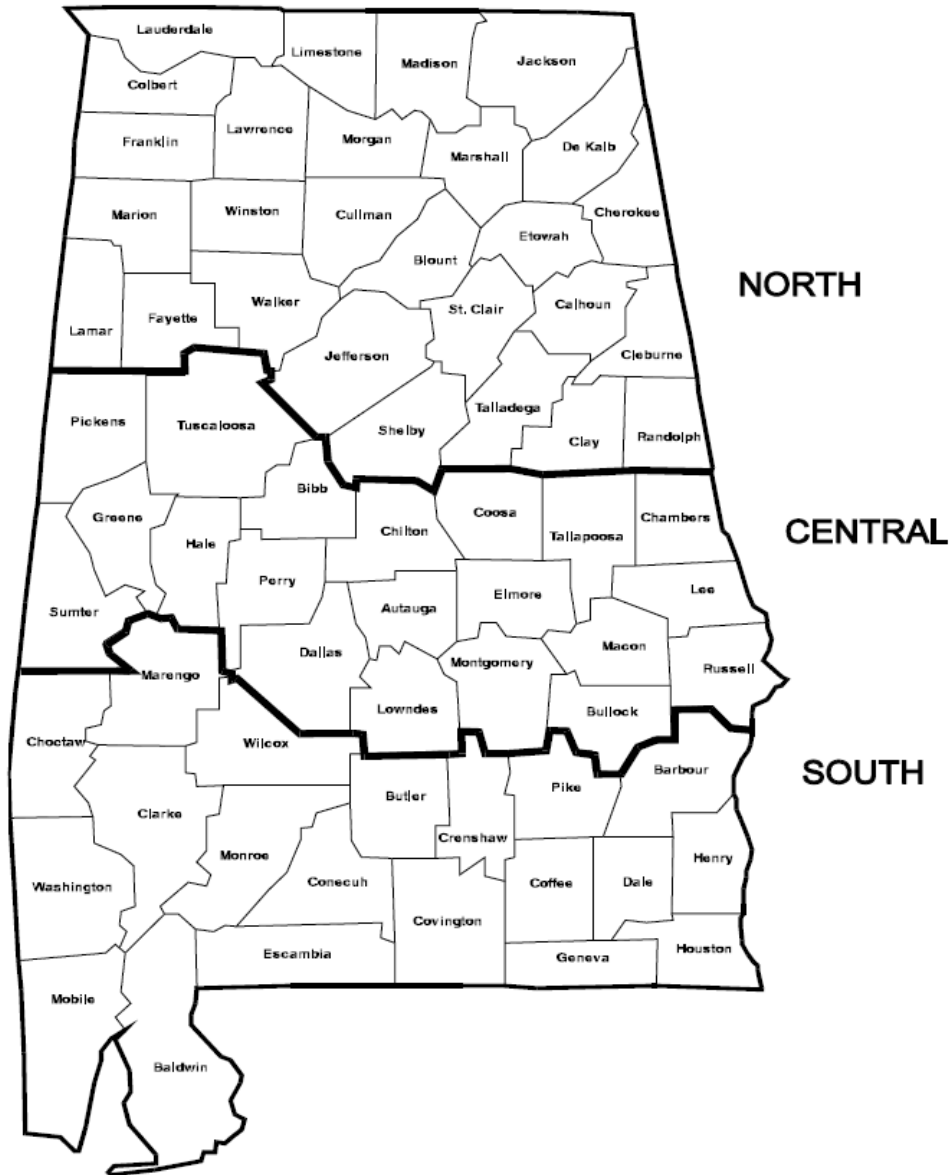
**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Reduce the

seeding rates of legumes by about 50% when used in the mixtures of three.

- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.

## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES





## CONSERVATION ENHANCEMENT ACTIVITY

### E340G

# CONSERVATION STEWARDSHIP PROGRAM

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

### Conservation Practice 340: Cover Crop

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 1 Year

### Enhancement Description

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

### Criteria

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

E340G - Cover crop to reduce water quality degradation by utilizing excess soil nutrients	July 2019	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

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



# CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

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

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

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

#### Planned Management Rotation Including Cover Crop

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

#### Cover Crop Mix and Seeding Rate

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

#### Establishment and Management Considerations:

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



# CONSERVATION STEWARDSHIP PROGRAM

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

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

**NRCS will:**

- As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.



# CONSERVATION STEWARDSHIP PROGRAM

- After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, document that the applied rotation met the enhancement criteria.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature                      Date

E340G - Cover crop to reduce water quality degradation by utilizing excess soil nutrients	July 2019	Page   5
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**ALABAMA – E340G Supplement- Cover crop to reduce water quality degradation by utilizing excess soil nutrients**

**Requirements:**

- Applicable where no cover crops or legumes-only have been planted in the past. Cover crops must be grown during all non-crop periods and shall not be harvested or grazed.
- Crops planted following the cover crop must be no-tilled or strip-tilled.
- Calculate before and after soil loss for the field to be planted.
- a recent soil test (within last three years) is required. Nitrogen is the nutrient most likely to leach in Alabama soils; however, soil nitrogen is not measured in a routine soil test. The amount of total nitrogen applied to the preceding crop will be documented along with crop yield. Nitrogen should be applied to crops at rates not to exceed Alabama Cooperative Extension System recommendations. Refer to Agronomy Technical Note AL-73 Nitrogen Leaching Index for Alabama. The amount of N captured by the cover crop should be considered in the nitrogen budget.
- increase seeding rates by 30% if aerially applied.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production. Do not terminate greater than 30 days prior to crop planting. Refer to Alabama Guide Sheet AL340A, Cover Crop Termination Timing.
- Minimum requirement is a **single species** or **two species mix** that includes any of the following: **small grain, brassicas, or sorghum-sudangrass** (sorghum-sudangrass is a warm season annual that may fit in a rotation with a short-season summer crop). Radish provides excellent early fall growth if planted timely. Ryegrass may not be used. Cover crop should be at least 24 inches tall prior to termination except prior to corn planting.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

Nitrogen scavenging cover crops	Minimum lbs./ac
Examples	
1 species-small grain	65 lbs.
1 species-radish	8 lbs.
2 species-small grain, radish	50 lbs. + 3 lbs.
2 species-small grain, turnip	50 lbs. + 1.5 lbs.

\*small grains- rye, wheat, oats, barley, and triticale  
 Legumes-crimson clover, vetch, Austrian winter pea  
 Brassicas-daikon radish, turnip, rape

Complete the table below:

Tract/field	Cash crop	Total N applied	Yield	Crop year
<b>example</b>	corn	120 lbs./ac.	125 bu.	2019

**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	90-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.
<b>Brassicas</b> <b>Daikon radish</b> (Tillage radish)	5	0.25 – 0.5	Aug 30	Sept 15	Sept 20	Adapted to most soils.
<b>Rape/Canola</b>	5	0.25 – 0.75	Aug 15	Aug 30	Sept 15	Adapted to most soils.
<b>Turnip/Purple top</b>	5	0.25 – 0.75	Aug 20	Aug 30	Sept 15	Adapted to most soils.

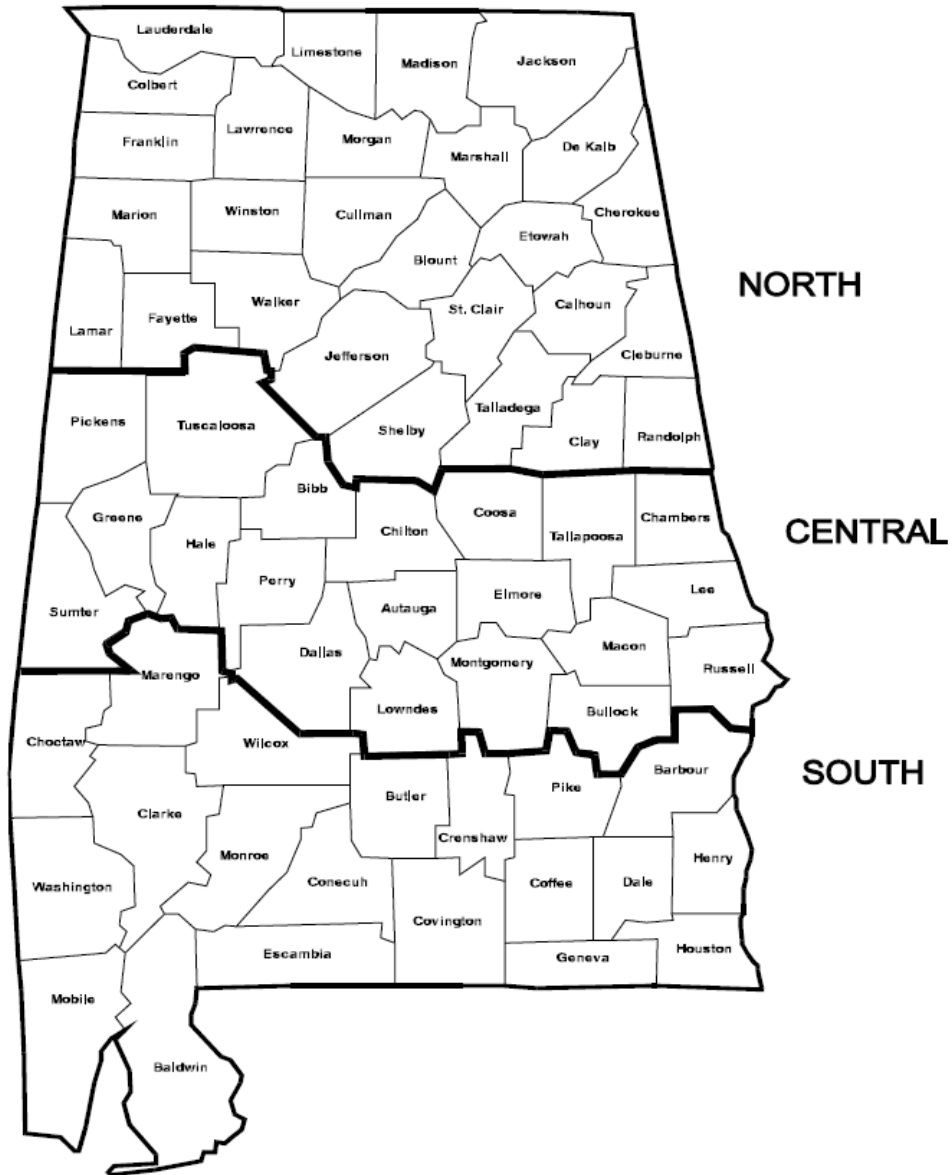
**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Reduce the

seeding rates of legumes by about 50% when used in the mixtures of three.

- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.

## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES





U.S. Department  
of Agriculture

Natural Resources  
Conservation Service

Auburn, Alabama

## AGRONOMY TECHNICAL NOTE

### AL-73

September 2014

# Nitrogen Leaching Index for Alabama

## *A Planning Tool to Assess & Manage N Leaching*

Non-leguminous crops typically require more nitrogen than Alabama soils provide in a growing season. Fertilizer, manure and legumes can all be sources of nitrogen that are required for economical crop production in Alabama. On the same note, too much available N may result in lower yields, reduce crop quality and become an environmental concern. If soil N as nitrate ( $\text{NO}_3^-$ ) supply is greater than crop demand, the excess  $\text{NO}_3^-$  may leach and enter ground or surface water. Therefore, a nutrient management approach that utilizes nutrient budgeting, risk assessment and the 4 R's (Right Source, Right Rate, Right time, and Right Place) is warranted in Alabama to reduce economic and environmental risk.

### **NITROGEN CONCERNS IN THE ENVIRONMENT**

Nitrogen is in organic and inorganic forms in soils. As much as 90 percent of soil nitrogen is in the soil organic matter, plant residue and/or animal manure/litter in an organic form. This organic nitrogen consists of proteins, amino acids, amino sugars, or in very complex unidentified substances in advanced stages of decomposition. The soil organic nitrogen, unlike inorganic forms of nitrogen, is not available for plant uptake or leaching.

The majority of nitrogen that is in the soil in an inorganic form is the result of the mineralization of organic material or the result of commercial fertilizer applications.

Organic sources of N are mineralized into the ammonium ion form ( $\text{NH}_4^+$ ). Ammonium is positively charged and is attracted to negatively charged sites on soil particles, as are other cations. It is available to the plants,

and will not leach. The N ( $\text{NH}_4^+$  form) is converted to nitrate ( $\text{NO}_3^-$ ) soon after its formation or addition as fertilizer.

Negatively charged nitrate remains in the soil solution and moves with soil water. Nitrate may leach out of the root zone when rainfall and/or irrigation water is excessive of plant use plus evaporation. The nitrate that leaches out of the root zone may enter the ground water and negatively affect water quality.

Consequently, in soil where the leaching potential is great, best management practices (BMP) should be instituted to reduce the risk of nitrogen leaching.

### **NITROGEN LEACHING INDEX CONCEPT**

The Nitrogen Leaching Index (NLI) is an indicator of the potential for nitrates to reach groundwater. Nitrate, because it is water soluble, moves downward as water percolates through the soil. The extent of percolation depends on permeability, pore-size distribution, soil depth to a restrictive layer, artificial drainage, and precipitation amount and distribution over the year. For a given precipitation pattern, excessively well drained soils have a greater leaching potential than less well drained soils.

The Nitrogen Leaching Index is the product of the Percolation Index (PI) and the Seasonal Index (SI) (Williams and Kissel, 1991):  $\text{NLI} = (\text{PI} \times \text{SI})$ . The Percolation Index is a function of the county annual average precipitation (AP) and soil hydrologic group. Current hydrologic groupings for each Alabama map unit can be found in the NRCS

Soil Data Mart and Web Soil Survey (WSS) by generating the "Water Features Report". Table 1 contains the NLI for all four hydrologic groups in all of the counties in Alabama.

### ***Management Implications***

An NLI below 2 indicates that the potential for nitrate leaching below the root zone is low. An NLI between 2 and 10 are moderate, between 10 and 20 are moderately high, and greater than 20 indicates that the potential for nitrate leaching below the root zone is high.

All soils in Alabama have an NLI greater than 2 and will require management to reduce the risk of nitrate leaching. In order to meet the N leaching requirements of the NRCS nutrient management standard (590), producers shall apply all nitrogen at the "**right rate**" and the "**right time**" according to the following criteria.

#### *Management Criteria*

- **Right Rate:** Total nitrogen applied shall be within 10% on field bases of the ACES recommendation (table 2). If yield potential is significantly greater or less than average, nitrogen rate may be based on "per unit of yield" for some crops. If nitrogen rates are based on "per unit of yield", realistic yield goals must be established based on historical yield data, soil productivity information, level of management, and local research results considering comparable production conditions. Realistic yield goals are often within 125% of a 3 to 5 year average yield.
- **Right Time:** All nitrogen application shall correspond as close as practical with plant nutrient uptake. Nitrogen sources should not be applied more than 30 days prior to planting (annual crops) or 30 days prior to the beginning of the growth cycle (perennial crops). Table 2 lists the "right time" for the major crops in Alabama and should be used as an indicator of crop growth and nutrient uptake. At a minimum, split applications shall be made according to ACES recommendations in table 2. Additional splitting of nitrogen applications can be made to maximize efficiency as long as the nitrogen applied is proportional to the expected growth and nutrient uptake of the crop. Since manure/litter releases

nutrients over time, when it is used, two split applications can be made simultaneously on all crops. When applying the last split application of nitrogen to hay, another cutting of hay should be expected during the current growing season and for pasture, another 45 days of grazing should be expected after this last application of nitrogen.

#### *Management Considerations*

The following should be considered in all cases regardless on NLI.

- Plant small grain cover crops or over-seed perennial sod with annuals to scavenge residual nitrogen. (In situations where the previous crop did not reach the yield goal, residual nitrogen in the soil is likely.)
- Implement conservation practices to improve soil health and promote plant health and vigor.
- When available use application equipment that utilizes rate controllers, GPS guidance, automatic section control or any combination of all 3 to improve application rate and placement.
- Use variable-rate nitrogen application based on expected crop yields, soil variability, or chlorophyll concentration.

### ***REFERENCES***

Mitchell, C.C. and G. Huluka 2012. The Basis of Soil Testing in Alabama. Agronomy and Soils Departmental Series No 324A. Alabama Agricultural Experiment Station. W. Batchelor, Director. Auburn University.

Mitchell, C.C. and G. Huluka 2012. Nutrient Recommendation Tables for Alabama Crops. Agronomy and Soils Departmental Series No 324B. Alabama Agricultural Experiment Station. W. Batchelor, Director. Auburn University.

Williams, J.R., and D.E. Kissel (1991). Water percolation: an indicator of nitrogen-leaching potential. In: R.F. Follet, D.R. Keeney, and R.M. Cruse (Eds.). Managing nitrogen for groundwater quality and farm profitability. Soil Science Society of America, Inc. Madison, Wisconsin. pp 59-83.



**Table 1.** Alabama Nitrogen Leaching Index. (H=high leaching potential, MH=moderately high leaching potential, M=moderate leaching potential L=low leaching potential)

	----- Hydrologic Soil Group -----					----- Hydrologic Soil Group -----			
	A	B	C	D		A	B	C	D
AUTAUGA	H	MH	MH	MH	HOUSTON	H	MH	MH	MH
BALDWIN	H	H	MH	MH	JACKSON	--	H	MH	MH
BARBOUR	H	MH	MH	M	JEFFERSON	--	H	MH	MH
BIBB	H	H	MH	MH	LAMAR	H	H	MH	MH
BLOUNT	H	H	MH	MH	LAUDERDALE	--	H	MH	MH
BULLOCK	H	MH	MH	MH	LAWRENCE	H	H	MH	MH
BUTLER	H	H	MH	MH	LEE	H	H	MH	MH
CALHOUN	H	MH	MH	MH	LIMESTONE	H	H	MH	MH
CHAMBERS	H	H	MH	MH	LOWNDES	H	MH	MH	MH
CHEROKEE	--	H	MH	MH	MACON	H	MH	MH	MH
CHILTON	H	H	MH	MH	MADISON	H	H	MH	MH
CHOCTAW	H	H	MH	MH	MARENGO	H	H	MH	MH
CLARKE	H	H	MH	MH	MARION	H	H	MH	MH
CLAY	--	H	MH	MH	MARSHALL	H	MH	MH	MH
CLEBURNE	--	H	MH	MH	MOBILE	H	H	MH	MH
COFFEE	H	H	MH	MH	MONROE	H	H	MH	MH
COLBERT	H	H	MH	MH	MONTGOMERY	H	MH	MH	MH
CONECUH	H	H	MH	MH	MORGAN	H	H	MH	MH
COOSA	--	H	MH	MH	PERRY	--	H	MH	MH
COVINGTON	H	H	MH	MH	PICKENS	H	H	MH	MH
CRENSHAW	H	H	MH	MH	PIKE	H	MH	MH	MH
CULLMAN	--	H	MH	MH	RANDOLPH	H	H	MH	MH
DALE	H	MH	MH	MH	RUSSELL	H	MH	MH	M
DALLAS	H	MH	MH	MH	SHELBY	--	H	MH	MH
DE KALB	--	H	MH	MH	ST CLAIR	--	H	MH	MH
ELMORE	H	H	MH	MH	SUMTER	H	H	MH	MH
ESCAMBIA	H	H	MH	MH	TALLADEGA	--	H	MH	MH
ETOWAH	--	H	MH	MH	TALLAPOOSA	H	H	MH	MH
FAYETTE	H	H	MH	MH	TUSCALOOSA	H	H	MH	MH
FRANKLIN	H	H	MH	MH	WALKER	--	H	MH	MH
GENEVA	H	MH	MH	MH	WASHINGTON	H	H	MH	MH
GREENE	H	H	MH	MH	WILCOX	H	H	MH	MH
HALE	H	H	MH	MH	WINSTON	--	H	MH	MH
HENRY	H	MH	MH	MH					

Table 2. Nitrogen (N) management criteria for row crops, forage and pastures, based on Alabama Cooperative Extension System recommendations.

Crop	Type	Right Rate	Right Time	Additional Information
<b>Row Crops</b>				
Canola		160 lb/ac	Apply 40 to 50 lb of N near planting in the fall, apply 90 to 120 lb N in February just prior to crop bolting.	If canola follows a good legume in the fall (peanuts or soybean), reduce the fall N application to 20 lb per acre.
Corn				
	Non- Irrigated	120 lb/ac	Apply 25% to 50% of N near planting and side dress the remainder when plants are about knee-high.	
	Irrigated	200 lb/ac		
	Silage	200 lb/ac		
Corn rate per unit yield				
	Non- Irrigated	1 lb/bu up to 120 bu any amt. over 120 bu will have a rate of 1.25 lb/bu	Apply 25% to 50% of N near planting and side dress the remainder when plants are about knee-high.	
	Irrigated			
	Silage	10 lb/ton		
Cotton		90 lb/ac	Apply N near planting; or 20 to 30% near planting and side dress the remainder prior to early square bloom.	On land where excessive growth causes a problem reduce N rate by 20 to 30 lb/ac; when vegetative growth has been inadequate increase N rate by 20 to 30 lb/ac.
Peanuts		0 lb/ac	N is not required for legumes.	
Small Grains			Apply 20 lb/ac N near planting and 60 to 80 lb/ac N at Feeke's growth stage 4 for south Alabama and growth stage 4-6 for north Alabama.	If a small grain is following a heavily fertilized corn crop, a good peanut or soybean crop, or a drought-damaged crop that could not utilize all the fertilizer N applied, often no fall N will be needed.
	Harvest Grain	100 lb/ac		
	Cover Crops	30 lb/ac	Apply 30 lb/ac N near planting	

<b>Row Crops (cont.)</b>				
Small Grains rate per unit yield			Apply 20 lb/ac N near planting and the remainder at Feeke's growth stage 4 for south Alabama and growth stage 4-6 for north Alabama	
	Barley	1.4 lb/Bu		
	Oats	1.0 lb/Bu		
	Rye	1.7 lb/Bu		
	Wheat	1.7 lb/Bu		
Sorghum			Apply 25% to 50% of N near planting and side dress the remainder approximately 30 after planting.	
	Grain	80 lb/ac		
	Silage	200 lb/ac		
	Sweet	80 lb/ac		
Sorghum rate per unit yield			Apply 25% to 50% of N near planting and side dress the remainder approximately 30 after planting.	
	Grain	2 lb/cwt		
	Silage	10 lb/ton		
Soybean			N is not required for legumes.	N in the form of manure/litter can be applied to soybeans equal to the estimated N removal in harvested plant biomass near planting.
		0 lb/ac		
<b>Pasture and Forage Crops</b>				
Alfalfa			N is not required for legumes.	N in the form of manure/litter can be applied to legumes equal to the estimated N removal in harvested plant biomass as growth begins.
		0 lb/ac		
Annual Legumes			N is not required for legumes.	N in the form of manure/litter can be applied to legumes equal to the estimated N removal in harvested plant biomass as growth begins.
	Arrowleaf clover, ball clover, crimson clover, caley peas, lespedeza and vetch	0 lb/ac		
Bermuda or Bahiagrass Hay			Apply 100 lb/ac as growth begins in spring and after each cutting up to September 1, or apply 50 pounds N per ton of anticipated hay removed in the next cutting.	
	Improved varieties	100 lb/ac/cutting		
Bermuda or Bahiagrass Hay per unit yield				
	Improved varieties	50 lb/ton		

<b>Pasture and Forage Crops (cont.)</b>				
Cool Season Annual Grasses				
	Pasture or Hay	160 lb/ac	For planting made in early September, apply 100 pounds of N per acre near planting and 60 pounds per acre in early spring.	If planted in late fall, apply 60 pounds of N per acre near planting and 60 pounds per acre in early spring. Ryegrass planted alone for grazing should receive no more than 60 pounds of N in the fall and up to 100 pounds N in the early spring
Cool Season Annual Grasses rate per unit yield			For planting made in early fall, apply 60% of the N near planting and the remainder in early spring.	
	Pasture or Hay	50 lb/ton		
Cool Season Annual Grasses with legumes			Apply 60 lb/ac N near planting. If legumes make up at least 50% of the ground cover in late winter or early spring do not apply additional N.	
		60 lb/ac		
Cool Season Perennial grass				
	Pasture	120 lb/ac	Apply 60 lb/ac N around September 1 <sup>st</sup> and 60 lb/ac in February	
Cool Season Perennial Grasses rate per unit yield			Apply 40 lb N/ton of anticipated yield in February.	If forage is needed in fall for grazing apply up to 60 lb/ac N around September 1 <sup>st</sup> . For hay 35 lb of additional K2O per ton of anticipated yield may be needed.
	Hay	40 lb/ton		
Cool Season Perennial grass with legumes			Do not apply N if legumes make up 33% or more of the ground cover.	If legumes do not make up 30% of ground cover apply 60 lb/ac N around September and 60 lb/ac in February
	Pasture	0 lb/ac		
Sericea Lespedeza			N is not required for legumes.	N in the form of manure/litter can be applied to legumes equal to the estimated N removal in harvested plant biomass as growth begins.
		0 lb/ac		

<b>Pasture and Forage Crops (cont.)</b>			
Warm Season Annual grass			Apply 60 lbs/ac of N in spring before growth begins and an additional 60 lbs/ac of N after each hay cutting or after each time the forage is grazed down up to September 1
	Pasture or Hay	60 lb/ac/cutting or grazing period	
Warm Season Annual Grasses rate per unit yield			Apply N rate per yield for expected yield in spring before growth begins and an additional N rate per yield for expected yield after hay cutting or after each time the forage is grazed down up to September 1
	Hay	40 lb/ton	
Warm Season Perennial grass			Apply 60 lbs/ac of N in spring before growth begins and an additional 60 lbs/ac of N when more growth is needed up to September 1
	Pasture	60 lb/ac/grazing period	
Warm Season Perennial grass with perennial or late maturing legume			If legume makes up 33 percent or more of the stand, do not apply N. Apply 60 pounds of N per acre if legumes do not makes up 33 percent and extra growth is needed.
		0 lb/ac	

For hay 35 lb of additional K<sub>2</sub>O per ton of anticipated yield may be needed.



CONSERVATION ENHANCEMENT ACTIVITY

E340H

CONSERVATION STEWARDSHIP PROGRAM

Cover crops to suppress excessive weed pressures and break pest cycles

Conservation Practice 340: Cover Crop

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

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 1 Year

Enhancement Description

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

Criteria

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

E340H - Cover crops to suppress excessive weed pressures and break pest cycles	July 2019	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

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



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

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

### Planned Management Rotation Including Cover Crop

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

### Cover Crop Mix and Seeding Rate

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

### Establishment and Management Considerations:

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

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





# CONSERVATION STEWARDSHIP PROGRAM

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

**NRCS will:**

- As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, document that the applied rotation met the enhancement criteria.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

E340H - Cover crops to suppress excessive weed pressures and break pest cycles	July 2019	Page   4
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**ALABAMA – E340H Supplement- Cover crop to suppress excessive weed pressures and break pest cycles**

**Requirements:**

- Applicable where cover crops have not been planted in the past. Cover crops must be grown during all non-crop periods and shall not be harvested or grazed.
- Crops planted following the cover crop must be no-tilled or strip-tilled.
- Calculate before and after soil loss for the field to be planted.
- when weed suppression is the primary objective, the cover crop should be managed for maximum biomass production and rolled prior to planting. Tall cover crops can be rolled more effectively; rye or a mix with rye is recommended for this purpose.
- when breaking pest life cycles or pest suppression is the primary objective, legumes are not generally recommended when soybean, peanut and cotton are in the rotation. Brassicas have good potential for this purpose. Do not plant wheat for a cover crop if wheat for grain is in the rotation.
- increase seeding rates by 30% if aerially applied.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production. Do not terminate greater than 30 days prior to crop planting. Refer to Alabama Guide Sheet AL340A, Cover Crop Termination Timing.
- Minimum requirement is a **single species** or **mix** that includes a **small grain, or small grain-brassica mix**. In addition, sorghum-sudangrass is a warm season annual that may fit in a rotation with a short-season summer crop. Radish provides excellent early fall growth if planted timely. Ryegrass may not be used. Cover crop should be at least 24 inches tall prior to termination. Due to the early planting date for corn, do not use for weed suppression prior to corn planting unless sufficient cover crop growth has been made to form a dense mat when rolled.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

	Minimum lbs./ac
1 species-Small grain*	65 lbs.
1 species-daikon radish	8 lbs.
2 species-small grain and clover	50 lbs. + 10 lbs.
2 species-small grain and brassica	50 lbs. + 3 lbs.
3 species-small grain, clover, brassica	40 lbs. + 10 lbs. + 3 lbs.

\*small grains- rye, wheat, oats, barley, and triticale  
 Legumes-crimson clover, vetch, Austrian winter pea  
 Brassicas-daikon radish, turnip, rape

**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	90-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.
<b>Brassicas</b> <b>Daikon radish</b> (Tillage radish)	5	0.25 – 0.5	Aug 30	Sept 15	Sept 20	Adapted to most soils.
<b>Rape/Canola</b>	5	0.25 – 0.75	Aug 15	Aug 30	Sept 15	Adapted to most soils.
<b>Turnip/Purple top</b>	5	0.25 – 0.75	Aug 20	Aug 30	Sept 15	Adapted to most soils.

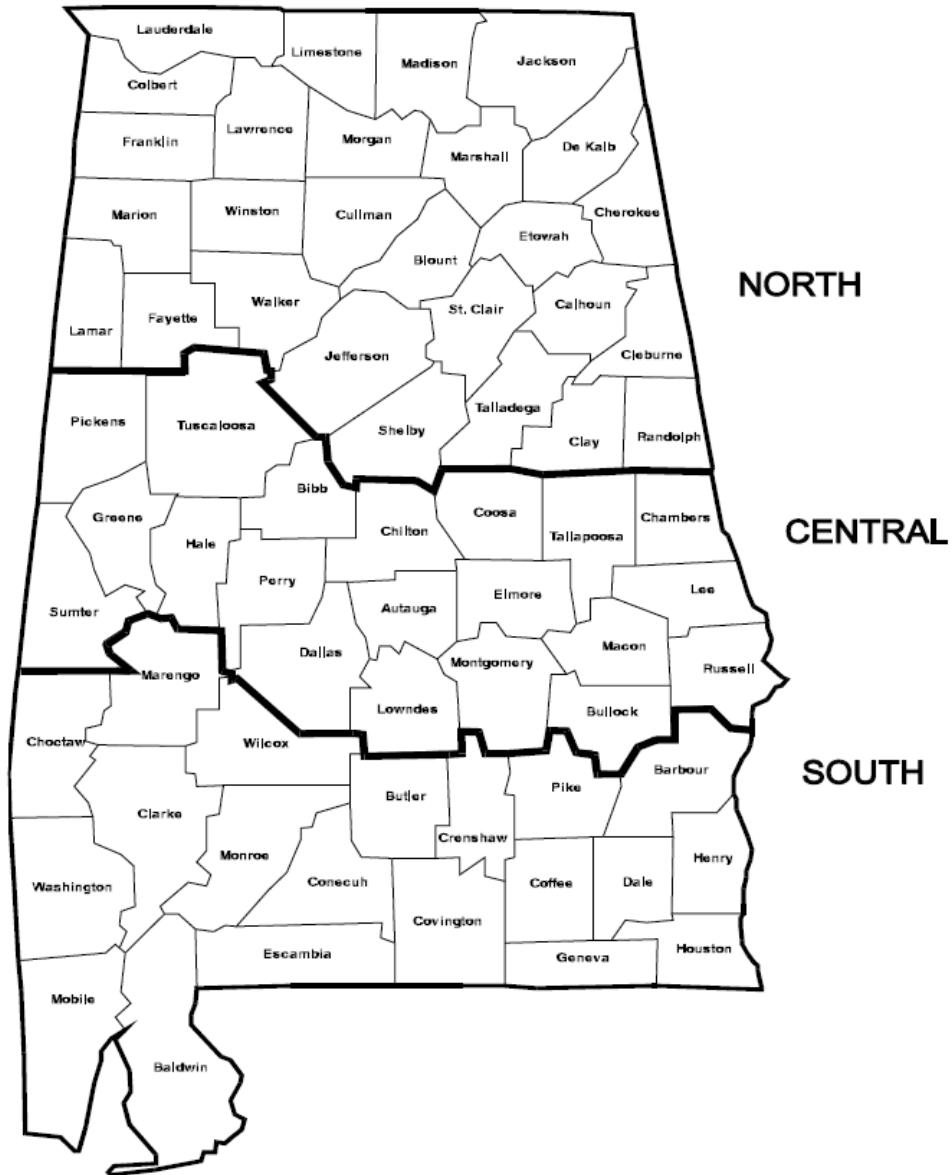
**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Reduce the

seeding rates of legumes by about 50% when used in the mixtures of three.

- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.

## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES





## 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.

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# CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

Participant will:

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

### **Planned Management Rotation Including Cover Crop**

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

### **Cover Crop Mix and Seeding Rate**

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

### **Establishment and Management Considerations:**

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



# CONSERVATION STEWARDSHIP PROGRAM

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

**NRCS will:**

- As needed, provide technical assistance in selecting cover crop mixes for the crop rotations or substitute species that would meet the criteria of the enhancement.
- As needed, provide additional assistance to the participant as requested.
- Prior to implementation, provide and explain the current [NRCS Cover Crop Termination Guidelines](#).
- During implementation, evaluate planned adjustments in cover crop selected, timing in crop rotation, management, or field operations to verify the new system meets the enhancement criteria.
- After implementation, evaluate the applied crop rotation or management using information provided from the participant, if any variation to planned evaluation, document that the applied rotation met the enhancement criteria.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

E340I – Using cover crops for biological strip till	July 2019	Page   3
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## ALABAMA – E340I Supplement- Using cover crops for biological strip till

### Requirements:

- Establish a strip of daikon radish cover crop to coincide with the row of primary crop to be planted the following spring. The remaining area between crops will have another cover crop type established, either a small grain or legume or mix. Radish will be planted at an 8 lb./ac. rate.
- Two separate passes with a no till drill will be needed with holes blocked accordingly to match the row spacing for planting the radish and then with the opposite holes blocked to plant the small grain or legume. As an alternative, a row crop planter may be used to plant the radish on top of the old rows and then a grain drill used with holes blocked over the row to plant the small grain or legume.
- Crops planted following the cover crop must be no-tilled or strip-tilled.
- Precision guidance must be used.
- Cover crops should be planted as early as possible and terminated as late as practical for maximum biomass production. Do not terminate greater than 30 days prior to crop planting. Refer to Alabama Guide Sheet AL340A, Cover Crop Termination Timing.
- Ryegrass may not be used.
- Complete the tables on the national jobsheet for documentation. In addition, receipts, copy of seed tags, weight tickets, etc. are needed. Photographs should be taken immediately prior to termination.
- Follow planting guidelines according to NRCS Conservation Practice Standard 340-Cover Crop or plant according to the table below. Other mixes may be approved by the state agronomist.

	Minimum lbs./ac
Examples	
3 species- 2 small grain, crimson clover	20 lbs. + 20 lbs. + 12 lbs.
2 species-small grain, clover	40 lbs. + 12 lbs.

\*small grains- rye, wheat, oats, barley, and triticale  
Legumes-crimson clover, vetch, Austrian winter pea  
Brassicas-daikon radish, turnip, rape

**TABLE 1. PLANTS COMMONLY USED FOR COVER CROPS IN ALABAMA**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Grasses</u></b>						
<b>Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug 15	Well drained, productive soils.
<b>Millet, Pearl</b>	Drill 15 B-Cast 30	½ - 1½	Apr 20-Jul 1	Apr 15-Jul 1	Apr 1-Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Black Belt soils.
<b>Sorghum-Sudan Hybrids</b>	Drill 25 B-Cast 35	½ - 1	May 1–Aug 1	Apr 15-Aug 1	Apr 1–Aug 15	Well drained, productive soils.
<b>Sorghum, Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained, productive soils.
<b>Sudangrass</b>	Drill 25 B-Cast 35	½ - 1	May 1-Aug 1	May 1-Aug 1	May 1-Aug 1	Light sandy to heavy clay soils.
<b><u>Cool Season Annual Grasses</u></b>						
<b>Small Grains (Oats, Rye, Wheat, Barley, Triticale)</b>	65-120	1 – 2	Sep 1–Nov 1	Sep 15–Nov 1	Sep 15-Nov 15	Rye is better adapted to well drained, sandy to loam soil and is more tolerant of soil acidity than wheat or oats; Oats are cold sensitive & subject of winter kill, especially in the northern half of Alabama; Wheat more tolerant of heavy wet soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b><u>Warm Season Annual Legumes</u></b>						
<b>Lespedeza, Annual</b>	30	¼ - ½	Feb 15-Apr 1	Feb 15-Apr 1	-	Needs good drainage; tolerant of drought; low fertility and soil acidity. Avoid lime soils of Black Belt.
<b><u>Cool Season Annual Legumes</u></b>						
<b>Austrian Winter Peas</b>	40	1-2	Sept 1-Oct 15	Sept 1-Oct	Sept 1-Oct 15	Best on well drained soils.
<b>Caley Peas</b>	50	½ - 1	Sep 1-Oct 15	Sep 1-Oct 15	Sep 1-Oct 15	Adapted to alkaline and moderately acid Black Belt soil. Seeds are toxic.
<b>Clover, Arrowleaf</b> <i>(see note "F" if seed is coated)</i>	6	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Overseed 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
<b>Clover, Ball</b> <i>(see note "F" if seed is coated)</i>	4	0 - ¼	Sep 1-Oct 31	Sep 1-Oct 31	Sep 1-Oct 31	Adapted to most soils. Reseeds well and tolerates wet soils and flooding.
<b>Clover, Crimson</b> <i>(see note "F" if seed is coated)</i>	25	0 - ½	Aug 25-Oct 1	Sep 1-Oct 15	Sep 15-Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
<b>Clover, Red</b> <i>(see note "F" if seed is coated)</i>	Drill 8 B-Cast 15	¼ - ½	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 Or Feb 1-Apr 1	Sep 15-Nov 15 -	Fertile, well drained soils.

**Table 1. (cont.) Plants Commonly Used for Cover Crops in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Clover, Subterranean</b> <i>(see note "F" if seed is coated)</i>	10	¼ - ½	Aug 25-Oct 1	Sep1-Oct 31	Sep1-Oct 31	Best on well drained, productive soils.
<b>Vetch, Common</b> <i>(see note "F" if seed is coated)</i>	35	1-2	--	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils. Certain varieties can freeze if planted late, especially in north Alabama. Nova II is the least cold tolerant.
<b>Vetch, Hairy</b> <i>(see note "F" if seed is coated)</i>	25	1-2	Sep 1 –Oct 15	Sep 1-Oct 15	Sep 15-Nov 1	Best on well drained soils.
<b>Brassicas</b> <b>Daikon radish</b> (Tillage radish)	8	0.25 – 0.5	Aug 30	Sept 15	Sept 20	Adapted to most soils.
<b>Rape/Canola</b>	5	0.25 – 0.75	Aug 15	Aug 30	Sept 15	Adapted to most soils.
<b>Turnip/Purple top</b>	3	0.25 – 0.75	Aug 20	Aug 30	Sept 15	Adapted to most soils.

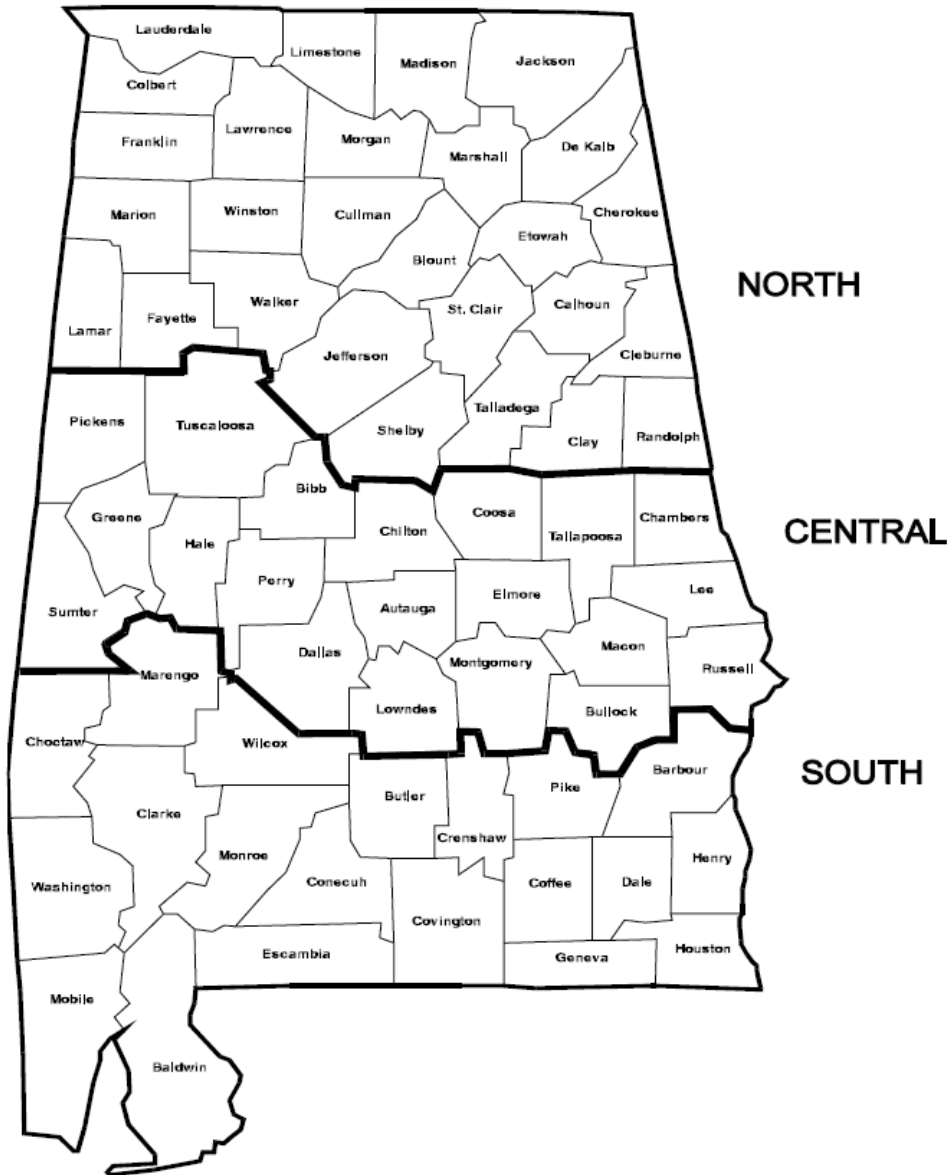
**NOTES:**

- A. Drill = Drilled and B-Cast = Broadcast.
- B. Where legumes are seeded with grasses, use the seeding dates for the grasses.
- C. Where two or more grasses are used in a mixture, reduce the seeding rate of each by about one-third. Reduce the

seeding rates of legumes by about 50% when used in the mixtures of three.

- D. Seeding rates should be increased at least 30% when aerially seeded.
- E. Seeding rates for a cost-share program shall be the rate specified by the program.
- F. Consider the weight of the coated seed in your seeding recommendation to adjust for the proper PLS rate.

## GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES







**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

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## CONSERVATION STEWARDSHIP PROGRAM

- Location of the "wildlife friendly" fence(s) and location of the habitat types affected by the fence.
- Examples:
  - Pronghorn antelope need to be afforded a smooth wire at the bottom of the fence with a 14" height above ground.
  - Deer need a maximum height of 42" with a minimum of 12" between the top two wires.
  - Fawns and turkeys need a stranded fence to negotiate (not woven wire).
  - Fences should be retrofitted to let down and put back up for migrating herds.
  - All open top pipes should be capped for songbirds.
  - If bats or sage grouse/lesser prairie chicken are selected as species of concern, then fences should be marked for visibility.
  - For bats, height requirements above water sources will be honored.
- Height, size, spacing and type of materials used will provide the desired control, life expectancy, and management of people and animals of concern. New fences will be designed, located, and installed to meet appropriate local wildlife and land management needs and requirements.
- Avoid clearing of right-of-way vegetation during the nesting season for migratory birds.
- Plans and specifications are to be prepared for all fence types, installations and specific sites.

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**Documentation and Implementation Requirements**

**CONSERVATION  
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PROGRAM**

**Participant will:**

- Prior to implementation, obtain an NRCS jobsheet that clearly identifies the species of concern. This document should clearly identify construction techniques for wildlife friendly modifications on existing fences, or specifications for newly constructed fences.
- Prior to implementation, develop a map with assistance from NRCS as needed, which identifies the location of the wildlife friendly fences to be modified or constructed.
- During implementation, consult with NRCS if there are any changes to modification or construction techniques.
- After implementation, provide a map of the actual location of constructed or modified fences for review to verify the enhancement was implemented.
- After implementation, provide pictures of newly constructed or modified fences depicting the specified construction techniques to benefit wildlife for review to verify the enhancement was implemented.

**NRCS will:**

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

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# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date







**CONSERVATION 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

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# CONSERVATION STEWARDSHIP PROGRAM

## Adoption Requirements

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

## Documentation and Implementation Requirements

### **Participant will:**

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

### **NRCS will:**

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

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# CONSERVATION STEWARDSHIP PROGRAM

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

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

E382B– Installing electrical fence offsets and wire for cross-fencing to improve grazing management.	August 2019	Page   3
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## **ALABAMA – E382B Supplement- Installing electrical fence offsets and wire for cross-fencing to improve grazing management**

- Applicable where existing non-electrified cross-fences are in place that meet NRCS standards and specifications.
- The purpose of this enhancement is to install a single wire attached with offsets to the existing fence, along with the installation of a fence charger, in order to provide a power source to facilitate further subdivisions of the existing paddocks using polywire to improve rotational grazing or implement strip grazing.

### **Requirements:**

1. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. The existing cross-fences to be retrofitted will be identified.
2. Offsets must be a minimum of 5 inches from the existing posts/wire.
3. Wire shall be new 12.5 gauge high tensile steel Class III galvanized and at least 170000 psi tensile strength. Fence and charger shall be installed according to Alabama Job Sheet 382B High Tensile Electric Fence for Cattle.
4. Only the mainline cross-fence should be retrofitted, polywire can be connected to the retrofitted wire from either side of the fence. The wire should be placed about nose-height for the livestock type. The livestock type will be identified in the plan.
5. Average annual livestock dry matter needs will be balanced with available forage without deficiency for the yearly summary. The Forage/Animal Balance Worksheet will be completed to document.
6. Livestock will be rotated between more than 3 pastures in a particular functional-group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. Typically, the number of paddocks should double by subdividing the existing pastures. Starting and ending grazing periods will meet the guidelines in the table below. Pastures will be sized and stocked to facilitate meeting the requirements for grazing heights and resting periods. Additional pastures will enable additional more rest.
7. A contingency plan will be developed denoting the use of sacrifice areas for pasture management during drought or other weather-related events. These areas will be labeled on the conservation plan map.
8. Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Records should be submitted quarterly along with forage analyses.

Grazing will be managed according to the Prescribed Grazing (528) Standard.

The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table). Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.

**FORAGE GUIDELINES FOR PRESCRIBED GRAZING SYSTEMS**

<b>Common Forages</b>	<b>Begin Grazing (in)</b>	<b>End Grazing (in)</b>	<b>Usual days of Rest</b>
Alfalfa grazing types	10	4	35 - 40
Bahiagrass	6	2	10 - 20
Bermudagrass common	5	2	7 - 10
Bermudagrass hybrid	6	3	7 - 10
Big Bluestem	18	10	30 - 45
Dallisgrass	6	3	7 - 15
Eastern Gamagrass	15	8	30 - 45
Tall Fescue	6	3	15 - 30
Indiangrass	12	6	30 - 40
Orchardgrass	8	3	15 - 30
Switchgrass	18	10	30 - 45

## Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						



**CONSERVATION ENHANCEMENT ACTIVITY**

**E386A**

**CONSERVATION STEWARDSHIP PROGRAM**

**Enhanced field borders to reduce soil erosion along the edge(s) of a field**

**Conservation Practice 386: Field Border**

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

**RESOURCE CONCERN: Soil**

**ENHANCEMENT LIFE SPAN: 10 years**

**Enhancement Description:**

Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover along the edge(s) of the field.

**Criteria:**

- Field borders shall be established at selected field edges at a width of at least 30 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Orient plant rows as closely as possible to perpendicular to sheet flow direction (water erosion) or most erosion wind directions (wind erosion).
- Field borders shall be established to adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.
- Plants selected for field borders will have the physical characteristics necessary to control wind and water erosion to tolerable levels on the field border area. No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.

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- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Field border establishment, in conjunction with other practices, will be timed so that the soil will be adequately protected during the critical erosion period(s).
- Establish stiff-stemmed, upright grasses, grass/legumes or forbs to trap water- borne soil particles.
- The amount of surface and/or canopy cover needed from the field border shall be determined using current approved water and wind erosion prediction technology. Soil erosion estimates shall account for the effects of other practices in the management system.
- Operation and maintenance requirements:
  - Repair storm damage.
  - Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
  - Shut off sprayers and raise tillage equipment to avoid damage to field borders.
  - Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
  - Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
  - Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
  - Repair and reseed ephemeral gullies and rills that develop in the border.
  - Minimally invasive vertical tillage (e.g. paraplowing) may be performed in rare cases where compaction and vehicle traffic have degraded the field border function. The



## CONSERVATION STEWARDSHIP PROGRAM

- purpose of the tillage is strictly to relieve soil compaction and increase infiltration rates to provide a better media for reestablishment of vegetation and field border function.
- When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
  - Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
  - Avoid vehicle traffic when soil moisture conditions are saturated.
  - Maintain records of the field border maintenance as needed by the land user.



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements:

### Participant will:

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

- Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. (NRCS will provide technical assistance, as needed.)

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

- Prior to implementation, determine liming and fertilizer requirements, planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Lime and Fertilizer Required	

- During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- During implementation, protect the planting from plant and animal pests and fire.
- After implementation, maintain and protect the planting from plant and animal pests and fire.
- After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = \_\_\_\_\_ feet



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS will:**

- Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- Prior to implementation, provide and explain NRCS Conservation Practice Field Border (Code 386) as it relates to implementing this enhancement.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = \_\_\_\_\_feet
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation meeting NRCS Conservation Practice Standard Field Border (Code 386).
  - Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
  - Selecting planting techniques and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control, as needed for the site.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the vegetation was established to specifications developed for the site.
- After implementation, verify the planting is protected from pests and fire.

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- 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

## **ALABAMA – E386A Supplement- Enhanced field borders to reduce soil erosion along the edge(s) of a field**

Enhance **existing** field borders to a width of at least 30 ft by establishing a perennial grass for the purpose of reducing soil erosion.

### **Requirements:**

- 1.** Plan map will show all fields and locations of the borders that are to be extended along with extents (width and length). Field borders will be a minimum of 30 ft. and a maximum of 60 ft. for this purpose.
- 2.** Grasses must be perennial but can be introduced or native. Refer to NRCS Conservation Practice Standard 512- Forage and Biomass Planting.
- 3.** Locate borders to eliminate sloping end rows. Rows should be oriented as closely as possible to perpendicular to sheet flow direction.
- 4.** Field borders should not be used as storage areas.
- 5.** No herbicide overspray should occur on borders when spraying field crops. Any vegetation destroyed by herbicides or tillage must be re-established.
- 6.** Borders with introduced grasses should be mowed annually for maintenance. Apply lime and fertilizer as needed to maintain vegetation in vigorous condition. Spot spray invasive or woody vegetation. Follow all herbicide label requirements.
- 7.** Apply lime and fertilizer according to soil test recommendations for establishment.
- 8.** Receipts for seed, fertilizer, and lime are required. Seed tags should include species and variety, germination, and purity. Complete all documentation on the national jobsheet.

**Table 1. WARM SEASON - Forage Crops Commonly Grown for Pasture or Hay in Alabama.**

	SEEDING RATE (LBS./A)	SEEDING DEPTH (IN.)	PLANTING DATE			REMARKS
			NORTH	CENTRAL	SOUTH	
<b><u>GRASSES - Perennial</u></b>						
BAHIAGRASS <sup>1/</sup>	15 - 20	¼ - ½	-	Mar - Jul 15	Feb - Nov	Adapted to sandy soils; tolerates drought and poor drainage. Lower seeding rate for Tift 9 and Tifquick.
BERMUDAGRASS <sup>8/</sup> SEED (HULLED)	5	¼ - ½	Apr - Jul 15	Mar 15-Jul 15	Mar - Jul 15	Adapted to sandy soils; tolerates drought; responds to nitrogen; potassium is important for survival and production.
BERMUDAGRASS – SPRIGS <sup>2/</sup>			Apr - Jul 15	Mar 15-Jul 15	Mar - Aug 15	Adapted to sandy soils; tolerates drought; responds to nitrogen; potassium is important for survival and production.
- ROWS (≤ 24 IN WIDE)	30 bu.	3 – 6				
- BROADCAST (> 24 IN WIDE)	45 bu.	2 – 4				
BIG BLUESTEM	12 lbs. PLS BC; 9 lbs. PLS Drilled <sup>3/</sup>	¼ - ½	Apr - May 15	Mar 15 - Apr	Mar - Apr	Do not continuously graze. Deep well-drained soils preferred.
DALLISGRASS	10 lbs. PLS	¼ - ½	Mar 15 - Jul 1	Mar - Jul 1	Feb - Jul 1	Best adapted to moist sites & Blackbelt soils.
EAST. GAMAGRASS <sup>4/</sup>	8 lbs. PLS Drilled/Rows	1 – 1½	Apr - Jul 1	Mar 15 - Jul 15	Mar - Jul 15	Best adapted to moist bottoms & stream terraces. Do not continuously graze.
INDIANGRASS	12 lbs. PLS BC; 9 lbs. PLS Drilled	¼ - ½	Apr – June 15	Apr – June 15	Apr – June 15	Adapted to well drained, fertile clay soils. Heat and drought tolerant. Do not continuously graze.
LITTLE BLUESTEM	8 lbs. PLS BC; 6 lbs PLS Drilled	¼ - ½	Apr – June 15	Apr – June 15	Apr – June 15	Does not tolerate poorly drained soils. Do not continuously graze. Drought resistant. Recommended for mixtures with Big Bluestem and Indiangrass.
SWITCHGRASS <sup>4, 7/</sup>	5 lbs. PLS BC; 4 lbs. PLS Drilled	¼ - ½	Apr – Jul 15	Mar 15 - Jul 15	Mar – Jul 1	Adapted to soils with good moisture. Tolerates poorly drained soils. Do not continuously graze. May be grown for biomass.

**Table 2. COOL SEASON - Forage Crops Commonly Grown for Pasture or Hay in Alabama.**

FORAGE CROP <sup>9/</sup>	SEEDING RATE (LBS./A)	SEEDING DEPTH (IN.)	PLANTING DATE			Remarks
			NORTH	CENTRAL	SOUTH	
<b><u>GRASSES - Perennial</u></b>						
TALL FESCUE <sup>5/</sup> (fungus friendly)	Drilled 15 B-Cast 20	¼ -½	Sep - Nov 1	Sep - Nov 1	Sep 15 - Nov 15 <sup>6/</sup>	Best adapted to fertile soils with good moisture holding capacity. Fungus friendly endophyte (E+) only.

<sup>1/</sup> -Bahiangrass plantings (excepted variety information from ACES recommendations):

- **Pensacola, Tift9, Tifquick, UF Riata** cultivars: S, C and N counties contiguous to Central Alabama plus St. Clair, Calhoun, and Cleburne.
- **Argentine** cultivar: S
- Fall plantings of bahiangrass should include 45 lbs. /ac of small grain to provide cover during winter months.

<sup>2/</sup> -Use broadcast rates for machine planting in rows > 24 inches wide.

<sup>3/</sup> \_ Drill – Drilled; B-Cast – Broadcast; and PLS = Pure Live Seed. PLS = % Germination X % Purity. (Refer to the Alabama Planting Guides for Grasses and Legumes links noted in the references).

<sup>4/</sup> \_ May be included in a mixture of other native grasses, Indiangrass & big bluestem, on a trial basis.

See AL NRCS conservation practice standard, Conservation Cover – Code 327 for seeding mixtures and rates.

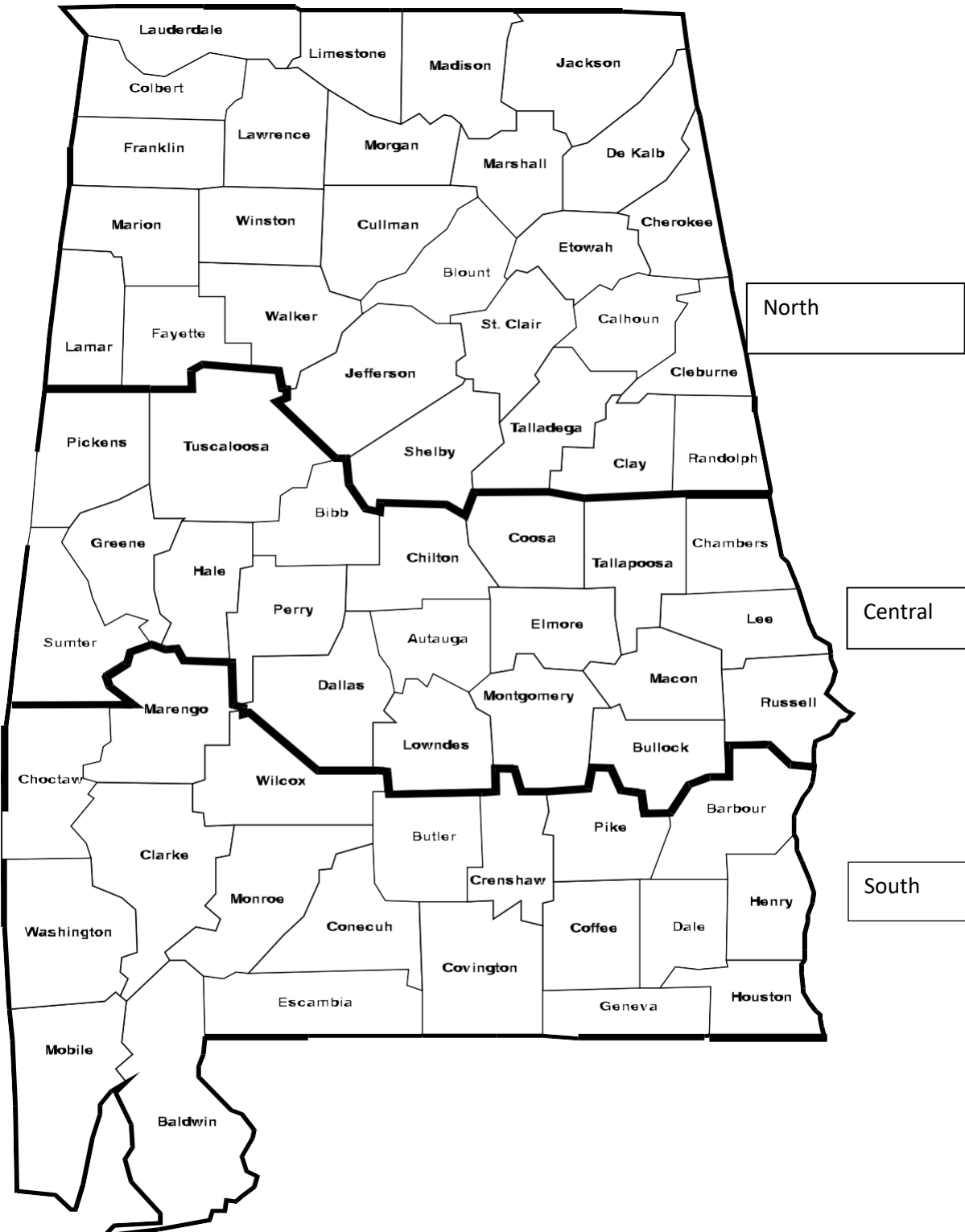
<sup>5/</sup> \_ Only endophyte friendly varieties of tall fescue shall be planted.

<sup>6/</sup> \_ Fescue seeding in south Alabama is limited to subclass w soils except in MLRA 135.

<sup>7/</sup> \_ May be planted for biomass production purposes.

<sup>8/</sup> \_ Seeded hybrid bermudagrasses recommended for forage purposes only when it's documented that fields are not large enough for sprigging hybrid bermudagrass.

<sup>9/</sup> Coated seed. Increase the seeding rate accordingly to account for the increased weight from the coating on the seed. This includes pre-inoculated seed. Refer to the seed tag for information on the coating or inert content per cent.





**CONSERVATION ENHANCEMENT ACTIVITY**

**E386B**

**CONSERVATION STEWARDSHIP PROGRAM**

**Enhanced field borders to increase carbon storage along the edge(s) of a field**

**Conservation Practice 386: Field Border**

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

**RESOURCE CONCERN: Soil**

**ENHANCEMENT LIFE SPAN: 10 years**

**Enhancement Description:**

Enhance existing field borders to a width of at least 30 feet and establish a single species or mixture of species that provide a dense ground cover and dense rooting system along the edge(s) of the field.

**Criteria:**

- Field borders shall be established along selected field edges at a width of at least 30 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Field borders shall be established to adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.
- Establish plant species that will produce adequate above- and below-ground biomass for the site.
- Maximize the width and length of the herbaceous border to fit the site and increase total biomass production.

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

- Do not burn the field border
- Do not disturb the roots of the established vegetation with tillage.
- Plants selected for field borders will have the physical characteristics necessary to produce adequate round cover and dense rooting system. No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Operation and maintenance requirements:
  - Repair storm damage.
  - Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
  - Shut off sprayers and raise tillage equipment to avoid damage to field borders.
  - Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
  - Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
  - Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
  - Repair and reseed ephemeral gullies and rills that develop in the border.
  - When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.



## CONSERVATION STEWARDSHIP PROGRAM

- Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- Avoid vehicle traffic when soil moisture conditions are saturated.
- Maintain records of the field border maintenance as needed by the land user.







# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements:

### Participant will:

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

- Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. (NRCS will provide technical assistance, as needed.)

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

- Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Lime and Fertilizer Requirements	

- During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- During implementation, protect the planting from plant and animal pests and fire.
- After implementation, maintain and protect the planting from plant and animal pests and fire.
- After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = \_\_\_\_\_ feet



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS will:**

- Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- Prior to implementation, provide and explain NRCS Conservation Practice Field Border (Code 386) as it relates to implementing this enhancement.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = \_\_\_\_\_feet
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation meeting NRCS Conservation Practice Standard Field Border (Code 386).
  - Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
  - Selecting planting techniques and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control, as needed for the site.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the vegetation was established to specifications developed for the site.
- After implementation, verify the planting is protected from pests and fire.

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

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

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## ALABAMA – E386B Supplement- Enhanced field borders to increase carbon storage along the edge(s) of a field

Enhance **existing** field borders to a width of at least 30 ft by establishing a perennial native grass(s) for the purpose of increasing carbon storage.

### Requirements:

1. Plan map will show all fields and locations of the borders that are to be extended along with extents (width and length). Field borders will be a minimum of 30 ft. and a maximum of 150 ft. OR width that will include no more than half the acres in the field.
2. Grasses must be native warm-season perennial and can be single species or mix. Native grass choices are at the bottom of the list.
3. Locate borders to eliminate sloping end rows. Rows should be oriented as closely as possible to perpendicular to sheet flow direction.
4. Field borders should not be used as storage areas.
5. No herbicide overspray should occur on borders when spraying field crops. Any vegetation destroyed by herbicides or tillage must be re-established.
6. Disking is the recommended form of maintenance. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point. Leave a minimum 10 inch stubble height if mowing becomes necessary. Spot spray invasive or woody vegetation. Follow all herbicide label requirements.
7. No lime and fertilizer will be applied at planting.
8. Receipts for seed, fertilizer, and lime are required. Seed tags should include species and variety, germination, and purity. Complete all documentation on the national jobsheet.

### Native Warm Season Grasses (*Choose a Minimum of 2*)

Big Bluestem**	2.5 pounds pls per acre
Eastern Gamagrass (best in higher moisture sites)	2 pounds pls per acre
Indiangrass**	2.5 pounds pls per acre
Little Bluestem	2.5 pounds pls per acre
Splitbeard Bluestem	1 pound pls per acre
Switchgrass (Do NOT use “Alamo” variety)	2 pounds pls per acre
Purpletop	2 pounds pls per acre

\*PLS = Pure Live Seed (% purity x % germination = % pure live seed)

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example **PLS = .90 X .70 = 63 percent**

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

\*\* It is recommended that these species are purchased in “debearded” form with the fluffy awn removed.



**CONSERVATION ENHANCEMENT ACTIVITY**

**E386C**

**CONSERVATION STEWARDSHIP PROGRAM**

**Enhanced field borders to decrease particulate emissions along the edge(s) of a field**

**Conservation Practice 386: Field Border**

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

**RESOURCE CONCERN: Air**

**ENHANCEMENT LIFE SPAN: 10 years**

**Enhancement Description:**

Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that decrease the particulate emissions along the edge(s) of the field.

**Criteria:**

- Field borders shall be established along selected field edges at a width of at least 40 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Plants selected for field borders will have the physical characteristics to optimize the interception and adhesion of airborne particles (species with a mature height of at least 2 feet). No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.

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

- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Do not burn the field border.
- Operation and maintenance requirements.
  - Repair storm damage.
  - Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
  - Shut off sprayers and raise tillage equipment to avoid damage to field borders.
  - Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
  - Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
  - Schedule mowing, harvest, weed control, and other management activities within the field border to accommodate the plants ability to intercept particulate emissions. Vehicle traffic should be avoided in the field border area.
  - Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
  - Repair and reseed ephemeral gullies and rills that develop in the border.
  - When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
  - Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.

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

## CONSERVATION STEWARDSHIP PROGRAM





# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements:

### Participant will:

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

- Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. (NRCS will provide technical assistance, as needed.)

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

- Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Lime and Fertilizer Requirements	

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





# CONSERVATION STEWARDSHIP PROGRAM

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

**NRCS will:**

- Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- Prior to implementation, provide and explain NRCS Conservation Practice Field Border (Code 386) as it relates to implementing this enhancement.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = \_\_\_\_\_ feet
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation meeting NRCS Conservation Practice Standard Field Border (Code 386).
  - Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
  - Selecting planting techniques and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control, as needed for the site.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.

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

- After implementation, verify the vegetation was established to specifications developed for the site.
- After implementation, verify the planting is protected from pests and fire.
- After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = \_\_\_\_\_ feet

### **NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## ALABAMA – E386C Supplement- Enhanced field borders to decrease particulate emissions along the edge(s) of a field

Enhance **existing** field borders to a width of at least 40 ft by establishing a perennial native grass(s) for the purpose of increasing carbon storage.

### Requirements:

1. Plan map will show all fields and locations of the borders that are to be extended along with extents (width and length). Field borders will be a minimum of 40 ft. and a maximum of 150 ft. OR width that will include no more than half the acres in the field.
2. Grasses must be native warm-season perennial mix. Native grass choices are at the bottom of the list.
3. Locate borders to eliminate sloping end rows. Rows should be oriented as closely as possible to perpendicular to sheet flow direction.
4. Field borders should not be used as storage areas.
5. No herbicide overspray should occur on borders when spraying field crops. Any vegetation destroyed by herbicides or tillage must be re-established.
6. Disking is the recommended form of maintenance. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point. Leave a minimum 10 inch stubble height if mowing becomes necessary. Spot spray invasive or woody vegetation. Follow all herbicide label requirements.
7. No lime and fertilizer will be applied at planting.
8. Receipts for seed, fertilizer, and lime are required. Seed tags should include species and variety, germination, and purity. Complete all documentation on the national jobsheet.

### Native Warm Season Grasses (*Choose a Minimum of 2*)

Big Bluestem**	2.5 pounds pls per acre
Eastern Gamagrass (best in higher moisture sites)	2 pounds pls per acre
Indiangrass**	2.5 pounds pls per acre
Little Bluestem	2.5 pounds pls per acre
Splitbeard Bluestem	1 pound pls per acre
Switchgrass (Do NOT use “Alamo” variety)	2 pounds pls per acre
Purpletop	2 pounds pls per acre

\*PLS = Pure Live Seed (% purity x % germination = % pure live seed)

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example **PLS = .90 X .70 = 63 percent**

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

\*\* It is recommended that these species are purchased in “debearded” form with the fluffy awn removed.



## CONSERVATION ENHANCEMENT ACTIVITY

E386D

# CONSERVATION STEWARDSHIP PROGRAM

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

Conservation Practice 386: Field Border

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 10 years

#### Enhancement Description:

Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide food for pollinators along the edge(s) of the field.

#### Criteria:

- Field borders shall be established along selected field edges at a width of at least 40 feet.
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Field borders shall be established to a mixture adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.
- **The NRCS at the state level will develop lists of plants suitable for pollinator habitat. The lists must emphasize as many native species as practical.**
- Plants selected for field borders will have the physical characteristics necessary to produce pollen during multiple seasons.

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

- No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Operation and maintenance requirements:
  - Repair storm damage.
  - Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
  - Shut off sprayers and raise tillage equipment to avoid damage to field borders.
  - Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
  - Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
  - Schedule mowing, harvest, weed control, and other management activities within the field border to accommodate reproduction and other life cycle requirements of target wildlife species. Vehicle traffic should be avoided in the field border area.
  - Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
  - Repair and reseed ephemeral gullies and rills that develop in the border.
  - When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning

E386D - Enhanced field borders to increase food for pollinators along the edge(s) of a field	July 2019	Page   2
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## CONSERVATION STEWARDSHIP PROGRAM

and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.

- Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- Avoid vehicle traffic when soil moisture conditions are saturated.
- Maintain records of the field border maintenance as needed by the land user.





# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements:

### Participant will:

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

- Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. (NRCS will provide technical assistance, as needed.)

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

- Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Lime and Fertilizer Requirements	

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



# CONSERVATION STEWARDSHIP PROGRAM

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

**NRCS will:**

- Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- Prior to implementation, provide and explain NRCS Conservation Practice Field Border (Code 386) as it relates to implementing this enhancement.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = \_\_\_\_\_ feet
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation meeting NRCS Conservation Practice Standard Field Border (Code 386).
  - Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
  - Selecting planting techniques and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control, as needed for the site.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.

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

- After implementation, verify the vegetation was established to specifications developed for the site.
- After implementation, verify the planting is protected from pests and fire.
- After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- After implementation, verify the total amount of field border implemented. Total implemented amount of field border extension = \_\_\_\_\_ feet

### **NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E386D – Enhanced Field Borders to Increase Food for Pollinators Along the Edge of Fields**

**Conservation Practice 386: Field Borders**

BRIEF DESCRIPTION OF ENHANCEMENT: This enhancement will be used to plant mixes which will be excellent pollinator and beneficial insect habitat.

**Some important things to note:**

- **Minimum Required Treatment:** A minimum of one-half acre (1/2 ac) of planting must be completed for every 40 acres of open land in the CSP application. (1.25% of open land acres)
- Field border width must be a minimum of 40 feet. Maximum width no more than 150 feet OR width that will include no more than half the acres in the field.
- This enhancement is not eligible for fields that will be taken out of crop production during the contract period.
- Select plants from the attached plant list. Three must be planted from each bloom period, with a total of 9 forb species to be planted along with 2 native grasses.
- NO fertilizer or lime will be applied to the site at planting.
- Area should be treated with appropriate herbicides prior to establishment of pollinator habitat if johnsongrass, cogon grass or other hard to eradicate species such as bahia, tall fescue or Bermuda grass is present.
- Maintenance shall be completed on these areas beginning the second winter after establishment. Some form of maintenance must be completed on all acres at least once every 3 years. The best regime is to implement maintenance on 1/3 of the acreage annually. Prescribed burning is the recommended form of maintenance, but mowing high (12 inches) is acceptable. Mowing could allow a duff layer to develop and potentially limit pollinator plant growth and survival. Therefore, if mowing is the main form of maintenance, then either fire or light disking must be used at least once every 3<sup>rd</sup> maintenance cycle to break the duff layer. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point.
- Spot spraying invasive and woody plants to stop encroachment is recommended during the life of the practice. Ensure herbicide label directions are followed.
- These field borders should not be used as storage areas.
- Take care not to allow overspray onto borders while spraying field crops.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

## Alabama Supplemental Guidance for CSP Enhancement

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- PROVIDE SEED INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

---

CSP Participant Name

---

Date

## **Conservation Stewardship Program**

### **Pollinator Habitat Plant List**

Choose a Minimum of 9 Forbs (3 Per Flowering Period) **AND** 2 native grasses (scroll to bottom)

#### **Early Flowering Species (Choose 3)**

Smooth Beardtongue ( <i>Penstemon digitalis</i> )	$\frac{3}{16}$ pound pls* per acre
Butterfly Weed ( <i>Asclepias tuberosa</i> )	$\frac{1}{4}$ pound pls per acre
Lanceleaf Tickseed ( <i>Coreopsis lanceolata</i> )	$\frac{1}{2}$ pound pls per acre
Blue False Indigo ( <i>Baptisia australis</i> )	1 pound pls per acre
Common Milkweed ( <i>Asclepias syriaca</i> )	$\frac{1}{4}$ pound pls per acre
Plains Coreopsis ( <i>Coreopsis tinctoria</i> )	$\frac{3}{16}$ pound pls per acre
Purple Prairie Clover ( <i>Dalea purpurea</i> )	$\frac{3}{16}$ pound pls per acre
Pale Purple Coneflower ( <i>Echinacea pallida</i> )	$\frac{1}{4}$ pound pls per acre
Spotted Beebalm ( <i>Monarda punctata</i> )	$\frac{1}{8}$ pound pls per acre
Black-Eyed Susan ( <i>Rudbeckia hirta</i> )	$\frac{1}{4}$ pound pls per acre
Golden Alexander ( <i>Zizia aurea</i> )	$\frac{1}{4}$ pound pls per acre

#### **Mid-Season Flowering Species (Choose 3)**

Large Flower Partridge Pea ( <i>Chamaecrista fasciculata</i> )	$\frac{1}{4}$ pound pls per acre
(Do NOT use Lark Selection large partridge pea)	
Small Flower Partridge Pea ( <i>Chamaecrista nictitans</i> )	$\frac{1}{4}$ pound pls per acre
Slender Mountain Mint ( <i>Pycnanthemum tenuifolium</i> )	$\frac{1}{8}$ pound pls per acre
Illinois Bundleflower ( <i>Desmanthus illinoensis</i> )	$\frac{1}{2}$ pound pls per acre
Purple Coneflower ( <i>Echinacea purpurea</i> )	$\frac{1}{2}$ pound pls per acre
Blue Verbena ( <i>Verbena hastata</i> )	$\frac{5}{16}$ pound pls per acre
Yellow Giant Hyssop ( <i>Agastache nepetoides</i> )	$\frac{1}{4}$ pound pls per acre
Golden Wave Tickseed ( <i>Coreopsis basalis</i> )	$\frac{1}{8}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Rattlesnake Master ( <i>Eryngium yuccifolium</i> )	$\frac{3}{8}$ pound pls per acre
White Prairie Clover ( <i>Dalea candida</i> )	$\frac{1}{4}$ pound pls per acre
Boneset ( <i>Eupatorium perfoliatum</i> )	$\frac{1}{8}$ pound pls per acre
Roundleaf Thoroughwort ( <i>Eupatorium rotundifolium</i> )	$\frac{1}{8}$ pound pls per acre
Lance-Leaved Goldenrod ( <i>Euthamia graminifolia</i> )	$\frac{1}{16}$ pound pls per acre
Rosemallow ( <i>Hibiscus moscheutos</i> )	$\frac{1}{4}$ pound pls per acre
Violet Lespedeza ( <i>Lespedeza violacea</i> )	$\frac{1}{4}$ pound pls per acre
Spiked Blazing Star ( <i>Liatris spicata</i> )	$\frac{1}{4}$ pound pls per acre
Lupine ( <i>Lupinus perennis</i> )	$\frac{5}{8}$ pound pls per acre
Bergamot ( <i>Monarda fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Mexican Hat ( <i>Ratibida coumnraris</i> )	$\frac{1}{8}$ pound pls per acre
Greyheaded Coneflower ( <i>Ratibida pinnata</i> )	$\frac{1}{4}$ pound pls per acre
Clasping Coneflower ( <i>Rudbeckia amplexicaulis</i> )	$\frac{1}{4}$ pound pls per acre
Passion Flower ( <i>Passiflora incarnate</i> )	$\frac{1}{2}$ pound pls per acre
Wild Quinine ( <i>Parthenium integrifolium</i> )	$\frac{3}{16}$ pound pls per acre

### **Late Flowering Species (Choose 3)**

Joe-Pye Weed ( <i>Eupatorium fistulosum</i> )	$\frac{1}{8}$ pound pls per acre
Sweet Joe-Pye Weed ( <i>Eupatorium purpureum</i> )	$\frac{1}{8}$ pound pls per acre
Swamp Sunflower ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre
Maximilian Sunflower ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre
Cardinal Flower ( <i>Lobelia cardinalis</i> )	$\frac{1}{8}$ pound pls per acre
Butterfly pea ( <i>Centrosema virginianum</i> )	$\frac{1}{8}$ pound pls per acre
Heath Aster ( <i>Aster pillosus/Symphotrichum pilosum</i> )	$\frac{1}{8}$ pound pls per acre
Wand Goldenrod ( <i>Solidago stricta</i> )	$\frac{1}{8}$ pound pls per acre
Pine Barren Goldenrod ( <i>Solidago fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Tall Goldenrod ( <i>Solidago altissima</i> )	$\frac{1}{8}$ pound pls per acre
Gray Goldenrod ( <i>Solidago nemoralis</i> )	$\frac{1}{8}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Rough Goldenrod ( <i>Solidago rugosa</i> )	1/8 pound pls per acre
Swamp Milkweed ( <i>Asclepias incarnata</i> )	3/8 pound pls per acre
Smooth Aster ( <i>Aster laevis</i> )	1/8 pound pls per acre
Showy Tickseed ( <i>Bidens aristosa</i> )	3/8 pound pls per acre
Tall Tickseed ( <i>Coreopsis tripteris</i> )	1/8 pound pls per acre
Florida Beggarweed ( <i>Desmodium floridanum</i> )	5/16 pound pls per acre
Dixie Tick Trefoil ( <i>Desmodium tortuosum</i> )	5/16 pound pls per acre
Perplexed Tick Trefoil ( <i>Desmodium perplexum</i> )	5/16 pound pls per acre
Pine Barren Tick Trefoil ( <i>Desmodium strictum</i> )	5/16 pound pls per acre
Indian Blanket ( <i>Gaillardia pulchella</i> )	3/8 pound pls per acre
Sneezeweed ( <i>Helenium autumnale</i> )	1/8 pound pls per acre
Evening Primrose ( <i>Oenothera biennis</i> )	1/8 pound pls per acre
Yellow Wingstem ( <i>Verbesina alternifolia</i> )	5/16 pound pls per acre
White Wingstem ( <i>Verbesina virginica</i> )	5/16 pound pls per acre
Iron Weed ( <i>Vernonia altissima</i> )	3/16 pound pls per acre
Alabama Iron Weed ( <i>Vernonia noveboracensis</i> )	3/16 pound pls per acre

### **Native Warm Season Grasses (Choose 2)**

Big Bluestem ( <i>Andropogon gerardii</i> )**	1/2 pound pls per acre
Purple Top ( <i>Tridens flavus</i> )	1/2 pound pls per acre
Yellow Indiangrass ( <i>Sorghastrum nutans</i> )**	1/2 pound pls per acre
Switchgrass ( <i>Panicum virgatum</i> ) (Do not use Alamo switchgrass)	1/2 pound pls per acre

\*PLS = Pure Live Seed (% purity x % germination = % pure live seed)

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example **PLS = .90 X .70 = 63 percent**

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

\*\* It is recommended that these species are purchased in “debearded” form with the fluffy awn removed.



**CONSERVATION ENHANCEMENT ACTIVITY**

**E386E**

**CONSERVATION STEWARDSHIP PROGRAM**

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

**Conservation Practice 386: Field Border**

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

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 10 years**

**Enhancement Description:**

Enhance existing field borders to a width of at least 40 feet and establish a mixture of species that provide wildlife food and habitat along the edge(s) of the field. The extended field border will also provide enhanced wildlife habitat continuity.

**Criteria:**

- Field borders shall be established along selected field edges at a width of at least 40 feet.
- The field border must connect an existing field border to another field border or to an existing or planned wildlife area (e.g. wood lot, CRP, pond, rangeland, etc.).
- Locate borders to eliminate sloping end rows, headlands, and other areas where concentrated water flows will enter or exit the field.
- Field borders shall be established to a mixture adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective.

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

- Plants selected for field borders will have the physical characteristics necessary to produce wildlife food and cover for the targeted species.
- No plant listed by the state as a noxious or invasive species shall be established in the field border.
- Seedbed preparation, seeding rates, dates, depths, fertility requirements, and planting methods will be consistent with approved local criteria and site conditions.
- Ephemeral gullies and rills present in the planned border area will be eliminated as part of seedbed preparation. If present, ephemeral gullies and rills located immediately upslope from the planned border area need to be treated to ensure more of a sheet flow into the planned border area.
- Operation and maintenance requirements:
  - Repair storm damage.
  - Remove sediment from above, within and along the leading edge of the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species.
  - Shut off sprayers and raise tillage equipment to avoid damage to field borders.
  - Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.
  - Do not use the field border as a hay yard or machinery parking lot for any extended period of time, especially if doing so will damage or impair the function of the field border.
  - Schedule mowing, harvest, weed control, and other management activities within the field border to accommodate reproduction and other life cycle requirements of target wildlife species. Vehicle traffic should be avoided in the field border area.





## CONSERVATION STEWARDSHIP PROGRAM

- Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious and invasive weeds to sustain effectiveness of the border.
- Repair and reseed ephemeral gullies and rills that develop in the border.
- When managing for wildlife, maintenance activities that result in disturbance of vegetation should not be conducted during the primary nesting, fawning and calving seasons. Activities should be timed to allow for regrowth before the growing season ends whenever possible.
- Periodic removal of some products such as medicinal herbs, nuts, and fruits is permitted provided the conservation purpose is not compromised by the loss of vegetation or harvesting disturbance.
- Avoid vehicle traffic when soil moisture conditions are saturated.
- Maintain records of the field border maintenance as needed by the land user.



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements:

### Participant will:

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

Prior to implementation, plan the field border extension to an existing field border which connects to another field border or to an existing or planned wildlife area (e.g. wood lot, CRP, pond, rangeland, etc.). Total planned acres connected = \_\_\_\_\_

Prior to implementation, select adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions. (NRCS will provide technical assistance, as needed.)

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

Prior to implementation, determine liming and fertilizer requirements, select planting technique and timing appropriate for the site and soil conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting Technique	
Lime and Fertilizer Requirements	

During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)

During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.

During implementation, protect the planting from plant and animal pests and fire.



# CONSERVATION STEWARDSHIP PROGRAM

- After implementation, maintain and protect the planting from plant and animal pests and fire.
- After implementation, verify the total amount of field border implemented and areas connected. Total implemented amount of field border extension = \_\_\_\_\_ feet  
Total areas connected = \_\_\_\_\_ Total acres connected = \_\_\_\_\_

**NRCS will:**

- Prior to implementation, verify the enhancement is planned within the field(s) or farm boundary.
- Prior to implementation, provide and explain NRCS Conservation Practice Field Border (Code 386) as it relates to implementing this enhancement.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for vegetation establishment. Total planned amount of field border extension = \_\_\_\_\_ feet
- Prior to implementation, verify the field border extension connects to another field border or to an existing or planned wildlife area (e.g. wood lot, CRP, Pond, Rangeland, etc.). Total planned areas connected = \_\_\_\_\_  
Total planned acres connected = \_\_\_\_\_
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation meeting NRCS Conservation Practice Standard Field Border (Code 386).
  - Selecting the adapted species of permanent grass, forbs and/or shrubs that accomplish the design objective and are best suited to site conditions.
  - Selecting planting techniques and timing appropriate for the site and soil conditions.

E386E - Enhanced field borders to increase wildlife food and habitat along the edge(s) of a field	July 2019	Page   5
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# CONSERVATION STEWARDSHIP PROGRAM

- Planning the use of additional erosion control, as needed for the site.
- Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the vegetation was established to specifications developed for the site.
- After implementation, verify the planting is protected from pests and fire.
- After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- After implementation, verify the total amount of field border implemented and areas connected. Total implemented amount of field border extension = \_\_\_\_\_ feet  
Total areas connected = \_\_\_\_\_ Total acres connected = \_\_\_\_\_

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

E386E - Enhanced field borders to increase wildlife food and habitat along the edge(s) of a field	July 2019	Page   6
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**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E386E – Enhanced Field Borders to Increase Wildlife Food and Habitat Along the Edge of Fields**

**Conservation Practice 386: Field Borders**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement will be used to plant mixes and extend field border widths which will benefit ground nesting birds and other wildlife.

**Some important things to note:**

- **Minimum Required Treatment:** A minimum of one-half acre (1/2 ac) of planting must be completed for every 40 acres of open land in the CSP application. (1.25% of open land acres)
- Field border width must be a minimum of 40 feet. Maximum width no more than 150 feet OR width that will include no more than half the acres in the field.
- Select plants from the attached plant list. A combination of native warm season grasses and forbs will be planted. Native grass choices are at the bottom of the list.
- This enhancement is not eligible for fields that will be taken out of crop production during the contract period.
- NO fertilizer or lime will be applied to the site at planting.
- Area should be treated with appropriate herbicides prior to establishment of pollinator habitat if johnsongrass, cogon grass or other hard to eradicate species such as bahia, tall fescue or Bermuda grass is present.
- Maintenance shall be completed on these areas beginning the second winter after establishment. Some form of maintenance must be completed on all acres at least once every 3 years. Implement maintenance on 1/3 of the acreage annually. Doing this will provide brood rearing habitat and nesting habitat in close proximity to each other for ground nesting birds like quail. Prescribed burning or light disking is the recommended form of maintenance. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point.
- Spot spraying invasive and woody plants to stop encroachment is recommended during the life of the practice. Ensure herbicide label directions are followed.
- These field borders should not be used as storage areas.
- Take care not to allow overspray onto borders while spraying field crops.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- PROVIDE SEED INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.

## Alabama Supplemental Guidance for CSP Enhancement

- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date

## **Conservation Stewardship Program**

### **Field Border Wildlife Habitat Plant List**

**FORBS** Choose a Minimum of 7 Forbs. (At least one per flowering period)

#### **Early Flowering Species**

Lanceleaf Tickseed ( <i>Coreopsis lanceolata</i> )	1/2 pound pls per acre
Blue False Indigo ( <i>Baptisia australis</i> )	1 pound pls per acre
Plains Coreopsis ( <i>Coreopsis tinctoria</i> )	3/16 pound pls per acre
Purple Prairie Clover ( <i>Dalea purpurea</i> )	3/16 pound pls per acre
Black-Eyed Susan ( <i>Rudbeckia hirta</i> )	1/4 pound pls per acre
Golden Alexander ( <i>Zizia aurea</i> )	1/4 pound pls per acre

#### **Mid-Season Flowering Species**

Large Flower Partridge Pea ( <i>Chamaecrista fasciculata</i> )	1/4 pound pls per acre
(Do NOT use “Lark” Variety large partridge pea)	
Small Flower Partridge Pea ( <i>Chamaecrista nictitans</i> )	1/2 pound pls per acre
Illinois Bundleflower ( <i>Desmanthus illinoensis</i> )	1/2 pound pls per acre
Purple Coneflower ( <i>Echinacea purpurea</i> )	1/2 pound pls per acre
Blue Verbena ( <i>Verbena hastata</i> )	5/16 pound pls per acre
Yellow Giant Hyssop ( <i>Agastache nepetoides</i> )	1/4 pound pls per acre
Golden Wave Tickseed ( <i>Coreopsis basalis</i> )	1/8 pound pls per acre
Rattlesnake Master ( <i>Eryngium yuccifolium</i> )	3/8 pound pls per acre
White Prairie Clover ( <i>Dalea candida</i> )	1/4 pound pls per acre
Boneset ( <i>Eupatorium perfoliatum</i> )	1/8 pound pls per acre
Lance-Leaved Goldenrod ( <i>Euthamia graminifolia</i> )	1/16 pound pls per acre
Rosemallow ( <i>Hibiscus moscheutos</i> )	1/4 pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Violet Lespedeza ( <i>Lespedeza violacea</i> )	$\frac{1}{4}$ pound pls per acre
Lupine ( <i>Lupinus perennis</i> )	$\frac{5}{8}$ pound pls per acre
Bergamot ( <i>Monarda fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Greyheaded Coneflower ( <i>Ratibida pinnata</i> )	$\frac{1}{4}$ pound pls per acre
Clasping Coneflower ( <i>Rudbeckia amplexicaulis</i> )	$\frac{1}{4}$ pound pls per acre
Passion Flower ( <i>Passiflora incarnate</i> )	$\frac{1}{2}$ pound pls per acre

### **Late Flowering Species**

Swamp Sunflower ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre
Maximilian Sunflower ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre
Butterfly pea ( <i>Centrosema virginianum</i> )	$\frac{1}{8}$ pound pls per acre
Heath Aster ( <i>Aster pillosus/Symphotrichum pilosum</i> )	$\frac{1}{8}$ pound pls per acre
Smooth Aster ( <i>Aster laevis</i> )	$\frac{1}{8}$ pound pls per acre
Showy Tickseed ( <i>Bidens aristosa</i> )	$\frac{3}{8}$ pound pls per acre
Tall Tickseed ( <i>Coreopsis tripteris</i> )	$\frac{1}{8}$ pound pls per acre
Florida Beggarweed ( <i>Desmodium floridanum</i> )	$\frac{5}{16}$ pound pls per acre
Dixie Tick Trefoil ( <i>Desmodium tortuosum</i> )	$\frac{5}{16}$ pound pls per acre
Perplexed Tick Trefoil ( <i>Desmodium perplexum</i> )	$\frac{5}{16}$ pound pls per acre
Pine Barren Tick Trefoil ( <i>Desmodium floridanum</i> )	$\frac{5}{16}$ pound pls per acre
Indian Blanket ( <i>Gaillardia punchella</i> )	$\frac{3}{8}$ pound pls per acre
Sneezeweed ( <i>Helenium autumnale</i> )	$\frac{1}{8}$ pound pls per acre
Evening Primrose ( <i>Oenothera biennis</i> )	$\frac{1}{8}$ pound pls per acre
Yellow Wingstem ( <i>Verbesina alternifolia</i> )	$\frac{5}{16}$ pound pls per acre
Iron Weed ( <i>Vernonia altissima</i> )	$\frac{3}{16}$ pound pls per acre
Alabama Iron Weed ( <i>Vernonia noveboracensis</i> )	$\frac{3}{16}$ pound pls per acre



## Alabama Supplemental Guidance for CSP Enhancement

### Native Warm Season Grasses (*Choose a Minimum of 2*)

Big Bluestem**	2.5 pounds pls per acre
Eastern Gamagrass (best in higher moisture sites)	2 pounds pls per acre
Indiangrass**	2.5 pounds pls per acre
Little Bluestem	2.5 pounds pls per acre
Splitbeard Bluestem	1 pound pls per acre
Switchgrass (Do NOT use "Alamo" variety)	2 pounds pls per acre
Purpletop	2 pounds pls per acre

\*PLS = Pure Live Seed ( $\% \text{ purity} \times \% \text{ germination} = \% \text{ pure live seed}$ )

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example **PLS = .90 X .70 = 63 percent**

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

\*\* It is recommended that these species are purchased in "debearded" form with the fluffy awn removed.



**CONSERVATION ENHANCEMENT ACTIVITY**

**E391B**

**CONSERVATION STEWARDSHIP PROGRAM**

**Increase stream shading for stream temperature reduction**

**Conservation Practice 391: Riparian Forest Buffer**

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

**RESOURCE CONCERN: Water**

**PRACTICE LIFE SPAN: 15 Years**

**Enhancement Description**

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

**Criteria**

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer-width requirement, whichever is greater. Buffer width shall be increased to 60 feet and may be extended up to 180 feet or the State-allowed maximum width.
- Where necessary to improve stream shading, increase canopy cover density in the existing buffer area.
- In addition to providing shading, establish plant communities that address aquatic and terrestrial wildlife and pollinator needs and have multiple values such as habitat enhancement and nutrient uptake.
- Dominant vegetation will consist of existing, naturally regenerated, or seeded/planted trees and shrubs suited to the soil and hydrology of the site and the intended purpose of providing stream shading.

E391B-Increase stream shading for stream temperature reduction	August 2019	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

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



**Documentation and Implementation Requirements**

**CONSERVATION STEWARDSHIP PROGRAM**

**Participant will:**

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

Planting Date	
Planting Method	
Density and spacing	

- Prior to implementation, work closely with NRCS to select plant species that are adapted to the specific site and that meet the goal of providing increased stream shading.

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

- During implementation and before planting, grade the site, as needed, to eliminate concentrated flow through the buffer including water coming from uphill of the buffer.
- During implementation, conduct planting of selected species according to dates, methods, spacing and other requirements listed in the planting plan.
- During implementation, install and maintain erosion control measures as needed, such as silt fencing and mulching.
- During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.
- After implementation, control harmful pests and vegetation and in a manner that limits effects to pollinators. Inspect and maintain tubes and protection measures regularly.



# CONSERVATION STEWARDSHIP PROGRAM

- After implementation, livestock and wildlife may need be controlled or excluded to achieve the buffer’s stream shading purpose. If livestock are present, follow a Prescribed Grazing Plan (Code 528) and defer grazing for a minimum of two years. Wildlife may need to be controlled during establishment of vegetative treatments. Temporary and local population control methods should be used with caution and within state and local regulations.

**NRCS will:**

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) to show how it relates to this enhancement.
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included in the planting list.
- Prior to implementation, NRCS will provide technical assistance on:
  - Site preparation and planting plan that meets NRCS Conservation Practice Standard Riparian Forest Buffer (Code 391) and lists the species, vegetation type, density, protection measures, and planting dates.
  - Selecting planting techniques and timing appropriate for the site and soil conditions.
  - The potential for denser species plantings and focus in areas that will provide the most shade to the stream throughout the day.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, review any planned changes to ensure they meet the enhancement criteria.
- During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications provided to the participant.

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# CONSERVATION STEWARDSHIP PROGRAM

- After implementation, verify the vegetation was established and any protections required are being maintained according to specifications provided to the participant.
- After implementation verify livestock are controlled or excluded as necessary to achieve the buffer’s goal of greater stream shading. If livestock are present, verify a Prescribed Grazing Plan (Code 528) is being followed and grazing is being deferred for a minimum of two years.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

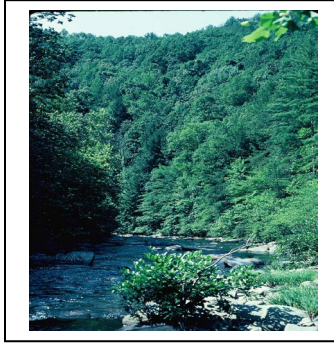
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Date

E391B-Increase stream shading for stream temperature reduction	August 2019	Page   5
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**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

***E391B – Increase Stream Shading for Stream Temperature Reduction***

**Conservation Practice 391: Riparian Forest Buffer**



***Increase Stream Shading for Stream Temperature Reduction***

*Where existing riparian forest buffers are located, along rivers, streams, ponds, lakes or other water bodies, increase the width to enhance stream shading benefits as well as provide greater protection of the waterway.*

***Benefits***

*Many species of aquatic organisms depend on clean, clear water. Lack of adequate shade from trees can cause many problems, from water temperature increases to increased aquatic plants in these waterways. Buffers also reduce rainwater runoff and sedimentation. Increasing the widths of existing riparian zones will enhance increase shading and protection for the adjacent waterway.*

**Enhancement Criteria**

- I. Riparian Buffer Width: This enhancement requires increasing the existing 35 foot buffer on each side of a defined waterway. Widths shall be increased to a minimum of 100 feet but may be extended to 180 feet. If a wider floodplain exists, then the state-allowed maximum width will be 300 feet or the width of the floodplain, whichever is less.
- II. Qualifying Streams: Those identified on topographic maps as having a solid or dashed blue line. Other streams with a defined bed or bank may qualify if approved by SRS or Resource Conservationist.
- III. Eligible Land: This practice is eligible on all land uses. Fallow fields or timberland with existing natural tree or shrub regeneration may be acceptable without planting. Even if these areas have adequate regeneration, landowners may choose to plant these areas to improve species composition for multiple use management.
- IV. A. Wildlife Plantings: Up to 10% of the riparian buffer acreage can be in herbaceous or shrub plantings that benefit pollinators and other wildlife. Annual or perennial herbaceous plants are acceptable. Shrubs or herbaceous plants must produce flowers preferred by pollinators during spring, summer or fall. Plantings cannot contain any area within the minimum SMZ extension (first 100 feet from the stream bank) to ensure maximum stream shading.  
  
B. Tree Plantings: Tree planting is required on pasture and cropland. Trees selected for planting should be suited to the soils and hydrology of the site. Spacing density should be 605 trees per acre or less. Favor species that have multiple values such as timber, nuts, fruits, wildlife and aesthetics. To ensure quick shade when planting, the first 50 feet of

## Alabama Supplemental Guidance for CSP Enhancement

the buffer extension shall include some light seeded species such as sycamore, yellow poplar or similar species suited for soils on the site.

- V. Invasive Plants: Control of invasive plants within the riparian buffer is **required**. “Alabama’s Ten Worst Invasive Weeds” publication lists the following species to be controlled: kudzu, tallotree, cogongrass, Chinese privet, tropical soda apple, Japanese climbing fern, invasive roses, Eurasian water milfoil, hydrilla and alligator weed. When herbicides are used, follow label restrictions.
- VI. Livestock Grazing: If the riparian buffer is part of a livestock operation, the area shall be fenced out and grazing shall be limited to periodic flash grazing as prescribed in the Grazing Plan (CPS 528).
- VII. Periodic Removals: Harvesting selected forest products such as high value trees, medicinal herbs, nuts and fruits is permitted provided the buffer areas are not compromised by the loss of vegetation or harvesting disturbance. Follow Alabama BMPs for Forestry if timber is to be harvested within the 15-year lifespan of this practice. (No clearcutting allowed during practice lifespan). For more details, see Streamside Management Zones Minimum Standards:  
[http://www.forestry.alabama.gov/Pages/Management/Forms/2007\\_BMP\\_Manual.pdf](http://www.forestry.alabama.gov/Pages/Management/Forms/2007_BMP_Manual.pdf)

### E391B JOB SHEET

TASK	Artificial Regeneration	Invasive Species
Date(s) Planted/Treated		
Species Planted Or Treated		
Invasive Treatment Type (foliar, basal bark, etc)	XXXXXXXXXXXXXXXXXXXX	
Invasive Percent Controlled	XXXXXXXXXXXXXXXXXXXX	
Trees per Acre & Spacing		XXXXXXXXXXXXXXXXXXXX
Notes		



## Alabama Supplemental Guidance for CSP Enhancement

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A COMPLETED E391B JOB SHEET
- MAPS OF THE AREA or LOCATION(S) OF THE STANDS
- PHOTO DOCUMENTATION OF ENHANCEMENT
- DATES OF COMPLETION

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the practice is completed.

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CSP Participant Name

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Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E391C**

**CONSERVATION STEWARDSHIP PROGRAM**

Increase riparian forest buffer width to enhance wildlife habitat

**Conservation Practice 391: Riparian Forest Buffer**

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

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 15 Years**

**Enhancement Description**

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

**Criteria**

- Existing buffer width shall be at least 35 feet or (if applicable) the minimum State buffer-width requirement, whichever is greater. Buffer width shall be increased to 60 feet and may be extended up to 180 feet or the State-allowed maximum width.
- The management plan shall consider habitat and wildlife objectives such as habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and native plant communities.
- Establish plant communities that address aquatic, terrestrial wildlife and pollinator needs and have multiple values such as habitat enhancement and nutrient uptake.

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

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



**Documentation and Implementation Requirements**

**CONSERVATION STEWARDSHIP PROGRAM**

**Participant will:**

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

Planting Date	
Planting Method	
Density and spacing	

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

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

- During implementation, conduct planting of selected species according to dates, methods, spacing and other requirements listed in the planting plan.
- During implementation, install and maintain erosion control measures as needed, such as, silt fencing and mulching.
- During implementation, notify NRCS of any planned changes to allow NRCS to verify that the changes meet NRCS enhancement criteria.
- After Implementation, control harmful pests and vegetation to reduce competition for water, nutrients, and space and in a manner that limits effects to pollinators. Inspect and maintain tubes and protection measures regularly.



## CONSERVATION STEWARDSHIP PROGRAM

- After implementation, livestock and wildlife may need be controlled or excluded to achieve the buffer’s habitat enhancement purpose. If livestock are present, follow a Prescribed Grazing Plan (Code 528) and defer grazing for a minimum of two years. Wildlife may need to be controlled during establishment of vegetative treatments. Temporary and local population control methods should be used with caution and within state and local regulations.

**NRCS will:**

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

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

- After implementation, verify the vegetation was established, and any protections required are being maintained according to specifications provided to the participant.
- After implementation verify livestock are controlled or excluded as necessary to achieve the buffer’s water quality improvement purpose. If livestock are present, verify a Prescribed Grazing Plan (Code 528) is being followed and grazing is being deferred for a minimum of two years.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

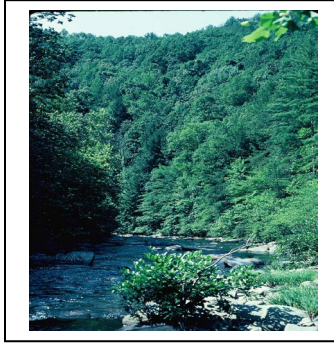
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NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E391C – Increase Riparian Buffer Width to Enhance Wildlife Habitat**

**Conservation Practice 391: Riparian Forest Buffer**



**Increase Riparian Buffer Width to Enhance Wildlife Habitat**

*Where existing riparian forest buffers are located, along rivers, streams, ponds, lakes or other water bodies, increase the width to enhance the wildlife habitat benefits as well as provide greater protection of the waterway.*

**Benefits**

*Many species of wildlife use riparian areas for travel corridors, food and shelter. Buffers also reduce rainwater runoff and sedimentation. Increasing the widths of existing riparian zones will enhance wildlife habitat and increase protection for the adjacent waterway.*

**Enhancement Criteria**

- I. Riparian Buffer Width: This enhancement requires increasing the existing 35 foot buffer on each side of a defined waterway. Widths should be increased to a minimum of 70 feet but may be extended to 180 feet. If a wider floodplain exists, then the state-allowed maximum width will be 300 feet or the width of the floodplain, whichever is less.
- II. Qualifying Streams: Those identified on topographic maps as having a solid or dashed blue line. Other streams with a defined bed or bank may qualify if approved by SRS or Resource Conservationist.
- III. Eligible Land: This practice is eligible on all land uses. Fallow fields or timberland with existing natural tree or shrub regeneration may be acceptable without planting. Even if these areas have adequate regeneration, landowners may choose to plant these areas to improve species composition for multiple use management.
- IV.
  - A. Wildlife Plantings: Up to 10% of the riparian buffer acreage can be in herbaceous or shrub plantings that benefit pollinators and other wildlife. Annual or perennial herbaceous plants are acceptable. Shrubs or herbaceous plants must produce flowers preferred by pollinators during spring, summer or fall. Plantings cannot be more than 50% of the width of the buffer at any one spot. Plantings cannot contain any area within the base SMZ (first 35 feet from the stream bank). Favor species that have multiple values such as timber, nuts, fruits, browse, nesting and aesthetics.
  - B. Tree Plantings: Tree planting is required on pasture and cropland. Trees selected for planting should be suited to the soils and hydrology of the site. Spacing density should be 500 trees per acre or less. Favor species that have multiple values such as timber, nuts, fruits, browse, nesting and aesthetics, with a heavy emphasis on wildlife.

## Alabama Supplemental Guidance for CSP Enhancement

- V. **Invasive Plants:** Control of invasive plants within the riparian buffer is **required**. “Alabama’s Ten Worst Invasive Weeds” publication lists the following species to be controlled: kudzu, tallotree, cogongrass, Chinese privet, tropical soda apple, Japanese climbing fern, invasive roses, Eurasian water milfoil, hydrilla and alligator weed. When herbicides are used, follow label restrictions.
- VI. **Livestock Grazing:** If the riparian buffer is part of a livestock operation, the area shall be fenced out and grazing shall be limited to periodic flash grazing as prescribed in the Grazing Plan (CPS 528).
- VII. **Periodic Removals:** Harvesting selected forest products such as high value trees, medicinal herbs, nuts and fruits is permitted provided the buffer areas are not compromised by the loss of vegetation or harvesting disturbance. Follow Alabama BMPs for Forestry if timber is to be harvested within the 15-year lifespan of this practice. (No clearcutting allowed during practice lifespan). For more details, see Streamside Management Zones Minimum Standards:  
[http://www.forestry.alabama.gov/Pages/Management/Forms/2007\\_BMP\\_Manual.pdf](http://www.forestry.alabama.gov/Pages/Management/Forms/2007_BMP_Manual.pdf)

### E391C JOB SHEET

TASK	Artificial Regeneration	Invasive Species
Date(s) Planted/Treated		
Species Planted Or Treated		
Invasive Treatment Type (foliar, basal bark, etc)	XXXXXXXXXXXXXXXXXXXX	
Invasive Percent Controlled	XXXXXXXXXXXXXXXXXXXX	
Trees per Acre & Spacing		XXXXXXXXXXXXXXXXXXXX
Notes		



## Alabama Supplemental Guidance for CSP Enhancement

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A COMPLETED E391C JOB SHEET
- MAPS OF THE AREA or LOCATION(S) OF THE STANDS
- PHOTO DOCUMENTATION OF ENHANCEMENT
- DATES OF COMPLETION

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the practice is completed.

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CSP Participant Name

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Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E393A**

**CONSERVATION STEWARDSHIP PROGRAM**

Extend existing filter strip to reduce water quality impacts

**Conservation Practice 393: Filter Strip**

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

**RESOURCE CONCERN: Water**

**ENHANCEMENT LIFE SPAN: 10 Years**

**Enhancement Description**

Extend existing filter strips for water quality protection. Extend the existing buffer for a total of 60 feet or more to enhance water quality functions. The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible.

**Criteria**

- Extend existing filter strip for water quality protection.
- Extend the existing buffer for a total of 60 feet or more to enhance water quality functions.
- Overland flow entering the filter strip shall be uniform sheet flow. Concentrated flow shall be dispersed before it enters the filter strip.
- The maximum gradient along the leading edge of the filter strip shall not exceed one-half of the up-and-down hill slope percent, immediately upslope from the filter strip, up to a maximum of 5%.
- Filter strips shall not be used as a travel lane for equipment or livestock.

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

- The filter strip will be designed to have a 10-year life span, following the procedure in the Agronomy Technical Note No. 2 (Using RUSLE2 for the Design and Predicted Effectiveness of Vegetative Filter Strips (VFS) for Sediment), based on the sediment delivery in RUSLE2 to the upper edge of the filter strip and ratio of the filter strip flow length to the length of the flow path from the contributing area.
- The filter strip shall be located immediately downslope from the source area of contaminants.
- The drainage area above the filter strip shall have a slope of 1% or greater.
- The extended buffers must be composed of at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. Include species that provide pollinator food and habitat where possible. State-listed noxious or invasive plants will not be established in the filter strip.
- The filter strip shall be established to permanent herbaceous vegetation. Species selected shall be:
  - able to withstand partial burial from sediment deposition and
  - tolerant of herbicides used on the area that contributes runoff to the filter strip.
- Species selected shall have stiff stems and a high stem density near the ground surface.
- Species selected for seeding or planting shall be suited to current site conditions and intended uses.
- Selected species will have the capacity to achieve adequate density and vigor within an appropriate period to stabilize the site sufficiently to permit suited uses with ordinary management activities.
- Species, rates of seeding or planting, minimum quality of planting stock, such as pure live seed or stem caliper, and method of establishment shall be specified before application. Only viable, high quality seed or planting stock will be used.
- Site preparation and seeding or planting shall be done at a time and in a manner that best ensures survival and growth of the selected species. What constitutes successful



## CONSERVATION STEWARDSHIP PROGRAM

establishment, e.g. minimum percent ground/canopy cover, percent survival, stand density, etc. shall be specified before application.

- Planting dates shall be scheduled during periods when soil moisture is adequate for germination and/or establishment. Seeding shall be timed so that tillage for adjacent crop does not damage the seeded filter strip.
- The minimum seeding and stem density shall be equivalent to a high-quality grass hay seeding rate for the climate area or the density of vegetation selected in RUSLE2 to determine trapping efficiency, whichever is the higher seeding rate.



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

- Prior to implementation, prepare the planned acres for vegetation establishment. Refer to NRCS Conservation Practice Standard Filter Strip (Code 393). (NRCS will provide technical assistance, as needed.) Total planned amount of filter strip extension = \_\_\_\_\_ feet

- Prior to implementation, select at least 5 species of non-noxious, wildlife friendly grasses and/or perennial forbs best suited to site conditions. (NRCS will provide technical assistance, as needed.)

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

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

Planting Date	
Planting Technique	

- During implementation, install and maintain erosion control measures as needed for the site. (NRCS will provide technical assistance, as needed.)
- During implementation, notify NRCS of any planned changes to verify changes meet NRCS enhancement criteria.
- During implementation, protect the planting from plant and animal pests and fire.
- After implementation, maintain and protect the planting from plant and animal pests and fire.
- After implementation, verify the total amount of filter strip implemented. Total implemented amount of filter strip extension = \_\_\_\_\_ feet



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS will:**

- Prior to implementation, verify the enhancement is planned for cropland.
- Prior to implementation, provide and explain NRCS Conservation Practice Filter Strip (Code 393) as it relates to implementing this enhancement.
- Prior to implementation, verify the enhancement is planned for acres that have been appropriately prepared for filter strip establishment. Total planned amount of filter strip extension = \_\_\_\_\_ feet
- Prior to implementation, verify no plants on the Federal or state noxious weeds list are included.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation meeting NRCS Conservation Practice Standard Filter Strip (Code 393).
  - Selecting the wildlife friendly grasses and/or perennial forbs best suited to site conditions.
  - Selecting planting techniques and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control, as needed for the site.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the vegetation was established to specifications developed for the site.
- After implementation, verify the planting is protected from pests and fire.



# CONSERVATION STEWARDSHIP PROGRAM

- After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- After implementation, verify the total amount of filter strip implemented. Total implemented amount of filter strip 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

## ALABAMA – E393A Supplement- Extend existing filter strip to reduce water quality impacts

Enhance **existing** filter strips to a width of at least 60 ft by establishing perennial native grasses and forbs for the purpose of enhancing water quality functions. Must have documentation that existing filter strip is functioning and meets minimum width requirements and has not been receiving applications of nutrients or pesticides. This enhancement is not applicable where nutrients and pesticides are/were not applied on the field providing runoff across the filter.

### Requirements:

1. Plan map will show all fields and locations of the filter strips that are to be extended along with extents (width and length). Filter strips will be a minimum of 60 ft. and a maximum of 120 ft. OR width that will include no more than half the acres in the field.
2. Existing introduced perennial grasses must be eradicated before establishment of the filter strip. A minimum of two herbicide applications will likely be required the year prior to establishment. Must be native warm-season perennial grass and forb mix. Seeding rates for filters strips are higher than for wildlife-only plantings. Native grass and forb choices are on the list below. Must choose a minimum of 3 grasses and 2 forbs. The maximum gradient along the leading edge of the filter strip shall not exceed one-half of the up-and-down-hill slope percent, immediately upslope from the filter strip, up to a maximum of 5%.
3. Locate filter strips where runoff water leaves the field. The leading edge should follow the contour as much as possible. Concentrated flow shall be dispersed before entering the filter strip.
4. Filter strips should not be used as storage areas or travel lanes.
5. No herbicide overspray should occur on filter strips when spraying field crops. Any vegetation destroyed by herbicides or tillage must be re-established.
6. Burning is the recommended form of maintenance. Maintenance shall be completed on these areas beginning the second winter after establishment. Some form of maintenance must be completed on all acres at least once every 3 years. The best regime is to implement maintenance on 1/3 of the acreage annually. Prescribed burning is the recommended form of maintenance, but mowing high (12 inches) is acceptable. Mowing could allow a duff layer to develop and potentially limit pollinator plant growth and survival. Therefore, if mowing is the main form of maintenance, then either fire or light disking must be used at least once every 3<sup>rd</sup> maintenance cycle to break the duff layer. Spot spray invasive or woody vegetation. Follow all herbicide label requirements.
7. No fertilizer will be applied at planting. Commercial fertilizer may be applied after vegetation is established in order to maintain stand.
8. Receipts for seed and lime (if needed) are required. Seed tags should include species and variety, germination, and purity. Complete all documentation on the national jobsheet.

### Native Warm Season Grasses (*Choose a Minimum of 3 AND 2 Forbs*)

Big Bluestem**	2.5 pounds pls per acre
Eastern Gamagrass (best in higher moisture sites)	2 pounds pls per acre
Indiangrass**	2.5 pounds pls per acre
Little Bluestem	2.5 pounds pls per acre
Splitbeard Bluestem	1 pound pls per acre
Switchgrass (Do NOT use "Alamo" variety)	2 pounds pls per acre



Purpletop

2 pounds pls per acre

\*PLS = Pure Live Seed (% purity x % germination = % pure live seed)

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example PLS = .90 X .70 = **63 percent**

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

\*\* It is recommended that these species are purchased in “debearded” form with the fluffy awn removed.

## **Pollinator Habitat Plant List**

**Choose a Minimum of 2 Forbs AND 3 native grasses**

### **Early Flowering Species (Choose 3)**

Smooth Beardtongue ( <i>Penstemon digitalis</i> )	3/16 pound pls* per acre
Butterfly Weed ( <i>Asclepias tuberosa</i> )	1/4 pound pls per acre
Lanceleaf Tickseed ( <i>Coreopsis lanceolata</i> )	1/2 pound pls per acre
Blue False Indigo ( <i>Baptisia australis</i> )	1 pound pls per acre
Common Milkweed ( <i>Asclepias syriaca</i> )	1/4 pound pls per acre
Plains Coreopsis ( <i>Coreopsis tinctoria</i> )	3/16 pound pls per acre
Purple Prairie Clover ( <i>Dalea purpurea</i> )	3/16 pound pls per acre
Pale Purple Coneflower ( <i>Echinacea pallida</i> )	1/4 pound pls per acre
Spotted Beebalm ( <i>Monarda punctata</i> )	1/8 pound pls per acre
Black-Eyed Susan ( <i>Rudbeckia hirta</i> )	1/4 pound pls per acre
Golden Alexander ( <i>Zizia aurea</i> )	1/4 pound pls per acre

### **Mid-Season Flowering Species (Choose 3)**

Large Flower Partridge Pea ( <i>Chamaecrista fasciculata</i> ) use Lark Selection large partridge pea)	1/4 pound pls per acre (Do NOT
Small Flower Partridge Pea ( <i>Chamaecrista nictitans</i> )	1/4 pound pls per acre
Slender Mountain Mint ( <i>Pycnanthemum tenuifolium</i> )	1/8 pound pls per acre
Illinois Bundleflower ( <i>Desmanthus illinoensis</i> )	1/2 pound pls per acre

Purple Coneflower ( <i>Echinacea purpurea</i> )	1/2 pound pls per acre
Blue Verbena ( <i>Verbena hastata</i> )	5/16 pound pls per acre
Yellow Giant Hyssop ( <i>Agastache nepetoides</i> )	1/4 pound pls per acre
Golden Wave Tickseed ( <i>Coreopsis basalis</i> )	1/8 pound pls per acre
Rattlesnake Master ( <i>Eryngium yuccifolium</i> )	3/8 pound pls per acre
White Prairie Clover ( <i>Dalea candida</i> )	1/4 pound pls per acre
Boneset ( <i>Eupatorium perfoliatum</i> )	1/8 pound pls per acre
Roundleaf Thoroughwort ( <i>Eupatorium rotundifolium</i> )	1/8 pound pls per acre
Lance-Leaved Goldenrod ( <i>Euthamia graminifolia</i> )	1/16 pound pls per acre
Rosemallow ( <i>Hibiscus moscheutos</i> )	1/4 pound pls per acre
Violet Lespedeza ( <i>Lespedeza violacea</i> )	1/4 pound pls per acre
Spiked Blazing Star ( <i>Liatris spicata</i> )	1/4 pound pls per acre
Lupine ( <i>Lupinus perennis</i> )	5/8 pound pls per acre
Bergamot ( <i>Monarda fistulosa</i> )	1/8 pound pls per acre
Mexican Hat ( <i>Ratibida coumnaris</i> )	1/8 pound pls per acre
Greyheaded Coneflower ( <i>Ratibida pinnata</i> )	1/4 pound pls per acre
Clasping Coneflower ( <i>Rudbeckia amplexicaulis</i> )	1/4 pound pls per acre
Passion Flower ( <i>Passiflora incarnate</i> )	1/2 pound pls per acre
Wild Quinine ( <i>Parthenium integrifolium</i> )	3/16 pound pls per acre

**Late Flowering Species (Choose 3)**

Joe-Pye Weed ( <i>Eupatorium fistulosum</i> )	1/8 pound pls per acre
Sweet Joe-Pye Weed ( <i>Eupatorium purpureum</i> )	1/8 pound pls per acre
Swamp Sunflower ( <i>Helianthus angustifolius</i> )	3/16 pound pls per acre
Maximilian Sunflower ( <i>Helianthus angustifolius</i> )	3/16 pound pls per acre
Cardinal Flower ( <i>Lobelia cardinalis</i> )	1/8 pound pls per acre
Butterfly pea ( <i>Centrosema virginianum</i> )	1/8 pound pls per acre
Heath Aster ( <i>Aster pillosus/Symphotrichum pilosum</i> )	1/8 pound pls per acre
Wand Goldenrod ( <i>Solidago stricta</i> )	1/8 pound pls per acre
Pine Barren Goldenrod ( <i>Solidago fistulosa</i> )	1/8 pound pls per acre

Tall Goldenrod ( <i>Solidago altissima</i> )	$\frac{1}{8}$ pound pls per acre
Gray Goldenrod ( <i>Solidago nemoralis</i> )	$\frac{1}{8}$ pound pls per acre
Rough Goldenrod ( <i>Solidago rugosa</i> )	$\frac{1}{8}$ pound pls per acre
Swamp Milkweed ( <i>Asclepias incarnata</i> )	$\frac{3}{8}$ pound pls per acre
Smooth Aster ( <i>Aster laevis</i> )	$\frac{1}{8}$ pound pls per acre
Showy Tickseed ( <i>Bidens aristosa</i> )	$\frac{3}{8}$ pound pls per acre
Tall Tickseed ( <i>Coreopsis tripteris</i> )	$\frac{1}{8}$ pound pls per acre
Florida Beggarweed ( <i>Desmodium floridanum</i> )	$\frac{5}{16}$ pound pls per acre
Dixie Tick Trefoil ( <i>Desmodium tortuosum</i> )	$\frac{5}{16}$ pound pls per acre
Perplexed Tick Trefoil ( <i>Desmodium perplexum</i> )	$\frac{5}{16}$ pound pls per acre
Pine Barren Tick Trefoil ( <i>Desmodium strictum</i> )	$\frac{5}{16}$ pound pls per acre
Indian Blanket ( <i>Gaillardia pulchella</i> )	$\frac{3}{8}$ pound pls per acre
Sneezeweed ( <i>Helenium autumnale</i> )	$\frac{1}{8}$ pound pls per acre
Evening Primrose ( <i>Oenothera biennis</i> )	$\frac{1}{8}$ pound pls per acre
Yellow Wingstem ( <i>Verbesina alternifolia</i> )	$\frac{5}{16}$ pound pls per acre
White Wingstem ( <i>Verbesina virginica</i> )	$\frac{5}{16}$ pound pls per acre
Iron Weed ( <i>Vernonia altissima</i> )	$\frac{3}{16}$ pound pls per acre
Alabama Iron Weed ( <i>Vernonia noveboracensis</i> )	$\frac{3}{16}$ pound pls per acre



## CONSERVATION ENHANCEMENT ACTIVITY

E412A

## CONSERVATION STEWARDSHIP PROGRAM

### Enhance a grassed waterway

#### Conservation Practice 412: Grassed Waterway

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

**RESOURCE CONCERN ADDRESSED: Water Quality Degradation**

**ENHANCEMENT LIFE SPAN: 10 year**

#### Enhancement Description

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

#### Criteria

This enhancement shall include all the following:

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



**Documentation and Implementation Requirements**

**CONSERVATION STEWARDSHIP PROGRAM**

Participant will:

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

Field	Waterway ID	Criteria Chosen

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

- 

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

NRCS will:

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



# 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



## ALABAMA – E412A Supplement- Enhance a grassed waterway

Extend, enlarge, or increase protection for an **existing** grassed waterway for better water quality protection.

### **Requirements:**

1. Plan map will show all fields and locations of the grassed waterways that are to be enlarged along with extents (width and length). Grassed waterways must meet or exceed the minimum designed size.
2. Only the actual acreage of waterway increased is eligible for payment.
3. The option to install drain tiles on one or both sides of the waterway is applicable only if seepage is so severe that vegetation cannot be maintained.
4. Grasses must be perennial but can be introduced or native. Refer to NRCS Conservation Practice Standard 342-Critical Area Planting.
5. Rows should be oriented as closely as possible to perpendicular to sheet flow direction and drain into the waterway without end rows.
6. Grassed waterways should not be used as storage areas.
7. No herbicide overspray should occur on grassed waterways when spraying field crops. Any vegetation destroyed by herbicides or tillage must be re-established.
8. Grassed waterways with introduced grasses should be mowed annually for maintenance. Apply lime and fertilizer as needed to maintain vegetation in vigorous condition. Spot spray invasive or woody vegetation. Follow all herbicide label requirements.
9. Apply lime and fertilizer according to soil test recommendations for establishment.
10. Receipts for seed, fertilizer, and lime are required. Seed tags should include species and variety, germination, and purity. Complete all documentation on the national jobsheet.

**Table 2. Perennial Grasses, Legumes and Mixtures; Seeding Rates; and Planting Dates for Critical Area Plantings on Prepared Seedbeds**

Species	Seeding* Rate/Acre	Planting Depth (in.)	Planting Dates and Adapted Area			Remarks
			North	Central	South	
Bahiagrass*/ **	40 lbs	¼ - ½	Mar 1 – Jul 1	Mar 1 – Jul 1	Feb 1 – Nov 1**	Low growing, sod forming and may be slow to establish. Tolerant of droughty, low fertility sites.
Bermudagrass, Common, (Hulled)	10 lbs	¼ - ½	Apr 1 – Jul 15	Mar 15 – Jul 15	Mar 1 - Jul 15	Quick cover, low growing and sod forming. Intolerant of shade, low fertility and poor management.
Bahiagrass*/**+ Common Bermudagrass (Hulled)	27 lbs 7 lbs	¼ - ½	Mar 1 – Jul 1	Mar 1 – Jul 15	Mar 1 – Jul 15	Bermuda will provide quick cover until bahiagrass established.
Bermudagrass, Sprigs (Forage Type) or Common	30 bu – Rows or 45 bu – B. C.	3-6 2-4	Apr 1 – Jul 15	Mar 15 – Jul 15	Mar 1 – Aug 15	All hybrids are not adapted for North Alabama. Hybrid's Intolerant to low fertility and poor management.
Bermudagrass, Hybrid (Lawn types)	Solid Sod	---	Anytime during year	Anytime during year	Anytime during year	Usually needs irrigation to establish.
Bermudagrass, Hybrid (Lawn types)	Sprigs 217bu/ac, 6 in. rows Plugs- 1/ft <sup>2</sup>	¼ - ½	Mar 15 – Aug 1	Mar 1 – Aug 15	Feb 15 – Sep 1	Usually needs irrigation to establish.
Fescue, Tall****	D – 40 lbs*** B – 50 lbs	¼- ½	Mar 1 – Apr 15 Sep 1 – Nov 1	--- Sep 1 – Nov 1	--- Sep 15 – Nov 15	Good shade tolerance and does well on wet sites. Slow to establish. Does not establish well from spring planting
Fescue, Tall**** and White Clover	D – 40 lbs B - - 50 lbs D&B – 3 lbs	¼ - ½	Mar 1- Apr 15 Sep 1 – Nov 1	--- Sep 1 – Nov 1	--- Sep 15 – Nov 15	Good shade tolerance. Does well on wet sites and clay soils of Black Belk.
Sericea	D – 40 lbs B – 60 lbs	¼	Mar 15 – Jul 15	Mar 1 – July 15	Feb 15 – Jul 15	Suited for low maintenance. Well adapted to low fertility soils and mine spoil. Slow to establish.



**Table 2. Perennial Grasses, Legumes and Mixtures; Seeding Rates; and Planting Dates for Critical Area Plantings on Prepared Seedbeds**

Species	Seeding* Rate/Acre	Planting Depth (in.)	Planting Dates and Adapted Area			Remarks
			North	Central	South	
Sericea + Bermudagrass (Hulled)	D-40 lbs, B-60 lbs D & B – 10 lbs	¼ in.	Mar 15- July 15	Mar 1- July 15	Feb 15-July 15	Bermudagrass will provide quick cover until Common sericea is established.
Switchgrass	D & B – 10 lbs. PLS	¼ in.	April 1 – Jul 1	Mar 15 – Jul 15	Mar 1 – Jul 15	Native grass adapted to a wide range of sites. Do not mow below 8 – 12 inches.

\* Bahiagrass planting: Sand Mountain variety: N,C,S

Pensacola, Tift9, UF Riata, Tifquick: S, C, counties contiguous to Central Alabama plus St. Clair, Calhoun, & Cleburne. Argentine bahiagrass may be planted in South AL.

\*\* Fall planting of bahiagrass should contain 45 pounds of small grain to provide cover during winter months.

\*\*\* D - drilled, B - broadcast, and PLS - pure live seed.

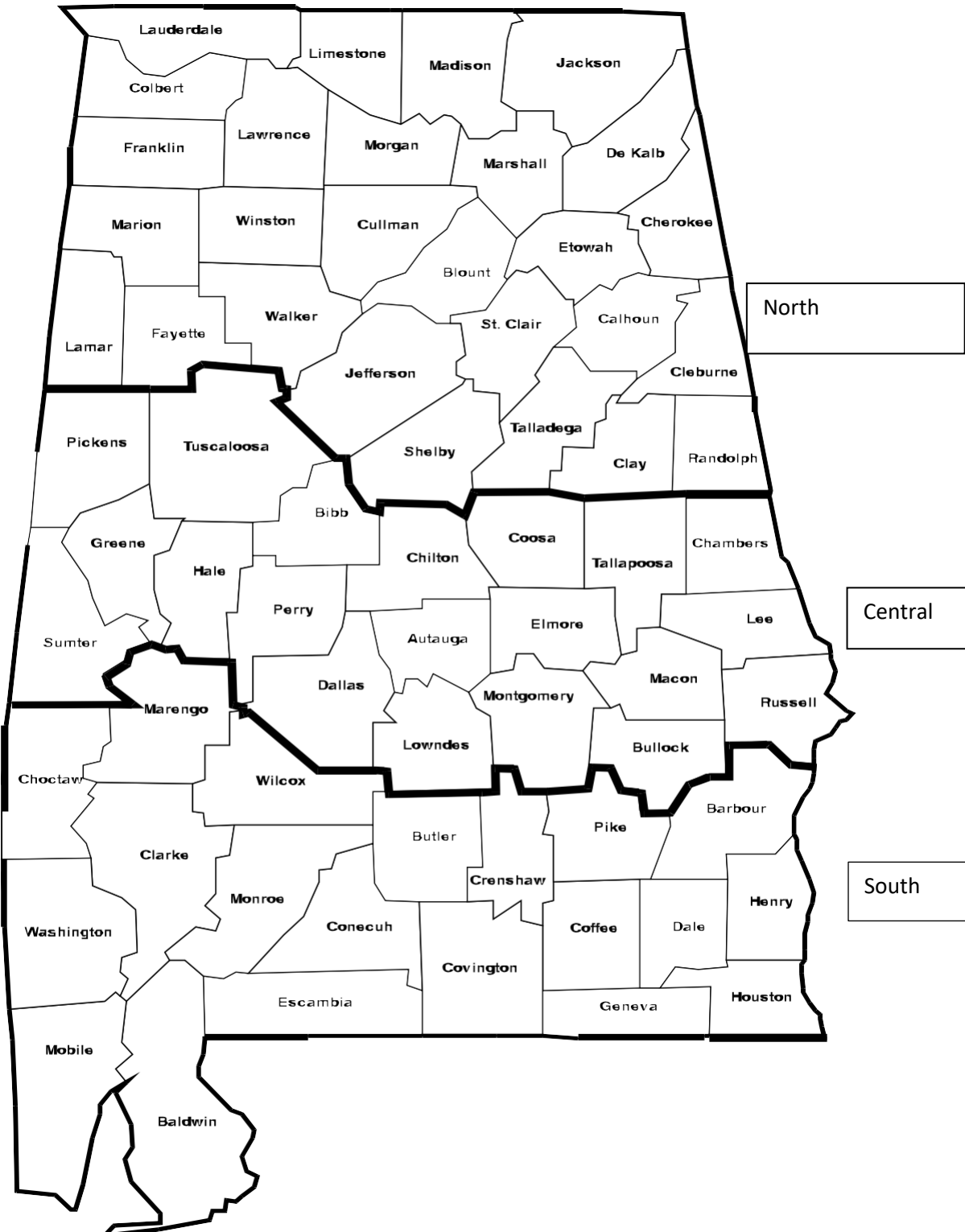
\*\*\*\* Tall fescue plantings in South Alabama are limited to land capability subclass w soils. Use novell endophyte infected types of fescue, or fungus freefescue.

**Notes:** 1. Legume seed will be properly treated with the inoculant specific for the species of legume.

2. Seeding rates for FSA and State cost share practices shall be the rate specified in the program handbook.

3. PLS – Pure Live Seed (lbs. of live seed x % purity = lbs. Pure Live seed)

4. Use hybrid broadcast rates for rows greater than 24 inches.





## CONSERVATION ENHANCEMENT ACTIVITY

### E420A

## CONSERVATION STEWARDSHIP PROGRAM

### Establish pollinator habitat

#### Conservation Practice 420: Wildlife Habitat Planting

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

#### Criteria

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

OR



## CONSERVATION STEWARDSHIP PROGRAM

- [For circumstances where planning criteria for pollinator habitat is at 0.5 or greater] Post implementation, planning criteria for pollinator habitat increases at least 0.1
- Habitat areas must be at least 0.5 acres for each 40 acres of the selected land use. Where the selected land use is less than 40 acres, the required amount of habitat will be reduced according to the ratio of 0.5 acres to 40 acres. The NRCS State Biologist must agree to habitat areas less than 0.25 acres. Where the selected land use is greater than 40 acres, the 0.5 acre habitat areas(s) may be a single site or interspersed sites in the larger land use areas as agreed to by the NRCS State Biologist.
- Establish habitat for pollinators as described below:

### A. Planting Criteria

1. NRCS at the state level will develop lists of plants suitable for pollinator habitat.  
The lists must emphasize as many native species as practical.
2. The habitat planting will include (as a minimum) three early, three mid, and three late flowering species from the NRCS state list including forbs, legumes, vines, 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.
4. Site selection should consider existing weed pressures and available methods of control. Delay planting if high weed pressure requires aggressive treatment.
5. Suppression of weeds and plant establishment will be accomplished according to the appropriate NRCS conservation practice standards and specifications.
6. Successful establishment is when the planting is providing at least 80% canopy cover, visually estimated, and that the resultant cover consists primarily of the early, mid, and late blooming species planted for pollinators.
7. Insecticides should not be used in the habitat planting area.



## CONSERVATION STEWARDSHIP PROGRAM

8. Herbicides are allowed during site preparation (prior to planting) when it is necessary to eliminate competing weeds from a planting area in order for nectar and pollen producing plants to establish.
9. After a pollinator enhancement has been planted, herbicides may be 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). Mowing height must not be too short so as to compromise the planting. A general guideline is 8 to 10 inches.

### B. Operation and maintenance

1. Management and/or maintenance activities such as mowing, haying, burning, or grazing must be conducted outside of the growing season or bloom period. Maintenance should be done on less than 1/3 of the acreage during any given year, except during the first year post-planting as described in A 9 above.
2. Insecticides should not be used in the habitat planting area. Even non-synthetic botanical insecticides can harm beneficial insects. If adjacent crop areas are treated with insecticides use one or more of the following actions to limit insecticides in the pollinator habitat area:
  - (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 that is least likely to inadvertently impact pollinators. For example, spot-spraying with herbicide or physical removal of undesirable plants.
4. If habitat is part of an organic farming operation, only materials allowed according to the USDA National Organic Program's National List of Allowed and Prohibited



United States Department of Agriculture

Substances may be used.

# CONSERVATION STEWARDSHIP PROGRAM





## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

Participant will:

- Prior to implementation, develop a map showing the location of proposed habitat areas with notes on land use adjacent to proposed habitat areas to discuss with NRCS staff.
- During implementation, purchase specified seed mix or plant materials that meets pollinator-specific seeding or planting requirements provided by NRCS.
- During implementation, follow habitat establishment guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Wildlife Habitat Planting (Code 420).
- After implementation, provide for review by NRCS a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred.
- After implementation, take and provide for review photographs as documentation of pollinator habitat area condition during blooming periods.

NRCS will:

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



**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date





**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E420A – Establish Pollinator Habitat**

**Conservation Practice 420: Wildlife Habitat Planting**

BRIEF DESCRIPTION OF ENHANCEMENT: This enhancement will be used to plant mixes which will be excellent pollinator and beneficial insect habitat.

**Some important things to note:**

- A minimum of one-half acre (1/2 ac) of planting must be completed for every 40 acres of land in the CSP application, regardless of land use. (1.25% of total acres)
- To ensure adequate sunlight for successful planting, area to be seeded shall have a minimum of 30 feet in width between trees if planted beneath mature tree cover.
- Select plants from the attached plant list. A minimum of three must be planted from each bloom period, with a total of 10 species to be planted. At least two of the 10 plants must be one of those designated as preferred by native bees. They are designated on the plant list with two asterisks (\*\*).
- Area should be treated with appropriate herbicides prior to establishment of pollinator habitat if johnson grass, cogon grass or other hard to eradicate species such as bahia or Bermuda are present.
- If the area to be treated has stumps and/or logging debris at the time of practice planning, then the area must be de-stumped and cleared prior to planting and subsequent practice check out.
- NO fertilizer will be applied to the site at planting.
- Maintenance shall be completed on these areas beginning the second winter after establishment. Some form of maintenance must be completed on all acres at least once every 3 years. The best regime is to implement maintenance on 1/3 of the acreage annually. Prescribed burning is the recommended form of maintenance, however, mowing high (12 inches) acceptable. Mowing could allow a duff layer to develop and potentially limit pollinator plant growth and survival. Therefore, if mowing is the main form of maintenance, then either fire or light disking must be used at least once every 3<sup>rd</sup> maintenance cycle to break the duff layer. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point.
- Spot spraying to stop invasives and woody plant encroachment is recommended during the life of the practice but ensure herbicide label directions are followed.

## Alabama Supplemental Guidance for CSP Enhancement

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- SEED INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

---

CSP Participant Name

---

Date

## **Conservation Security Program**

### **Pollinator Habitat Plant List**

**Choose a Minimum of 10 Plants. (At least 3 Per Flowering Period)**

#### **Early Flowering Species**

Smooth Beardtongue ( <i>Penstemon digitalis</i> )	$\frac{3}{16}$ pound pls* per acre
Butterfly Weed** ( <i>Asclepias tuberosa</i> )	$\frac{1}{4}$ pound pls per acre
Lanceleaf Tickseed ( <i>Coreopsis lanceolata</i> )	$\frac{1}{2}$ pound pls per acre
Blue False Indigo ( <i>Baptisia australis</i> )	1 pound pls per acre
Common Milkweed** ( <i>Asclepias syriaca</i> )	$\frac{1}{4}$ pound pls per acre
Plains Coreopsis ( <i>Coreopsis tinctoria</i> )	$\frac{3}{16}$ pound pls per acre
Purple Prairie Clover ( <i>Dalea purpurea</i> )	$\frac{3}{16}$ pound pls per acre
Pale Purple Coneflower ( <i>Echinacea pallida</i> )	$\frac{1}{4}$ pound pls per acre
Spotted Beebalm** ( <i>Monarda punctata</i> )	$\frac{1}{8}$ pound pls per acre
Black-Eyed Susan ( <i>Rudbeckia hirta</i> )	$\frac{1}{4}$ pound pls per acre
Golden Alexander ( <i>Zizia aurea</i> )	$\frac{1}{4}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

### Mid-Season Flowering Species

Large Flower Partridge Pea ( <i>Chamaecrista fasciculata</i> )	$\frac{1}{4}$ pound pls per acre
Small Flower Partridge Pea ( <i>Chamaecrista nictitans</i> )	$\frac{1}{4}$ pound pls per acre
Slender Mountain Mint ( <i>Pycnanthemum tenuifolium</i> )	$\frac{1}{8}$ pound pls per acre
Illinois Bundleflower ( <i>Desmanthus illinoensis</i> )	$\frac{1}{2}$ pound pls per acre
Purple Coneflower** ( <i>Echinacea purpurea</i> )	$\frac{1}{2}$ pound pls per acre
Blue Verbena** ( <i>Verbena hastata</i> )	$\frac{5}{16}$ pound pls per acre
Yellow Giant Hyssop ( <i>Agastache nepetoides</i> )	$\frac{1}{4}$ pound pls per acre
Golden Wave Tickseed ( <i>Coreopsis basalis</i> )	$\frac{1}{8}$ pound pls per acre
Rattlesnake Master ( <i>Eryngium yuccifolium</i> )	$\frac{3}{8}$ pound pls per acre
White Prairie Clover ( <i>Dalea candida</i> )	$\frac{1}{4}$ pound pls per acre
Boneset ( <i>Eupatorium perfoliatum</i> )	$\frac{1}{8}$ pound pls per acre
Roundleaf Thoroughwort ( <i>Eupatorium rotundifolium</i> )	$\frac{1}{8}$ pound pls per acre
Lance-Leaved Goldenrod ( <i>Euthamia graminifolia</i> )	$\frac{1}{16}$ pound pls per acre
Rosemallow ( <i>Hibiscus moscheutos</i> )	$\frac{1}{4}$ pound pls per acre

Revised January 17, 2023

## Alabama Supplemental Guidance for CSP Enhancement

Violet Lespedeza ( <i>Lespedeza violacea</i> )	$\frac{1}{4}$ pound pls per acre
Spiked Blazing Star ( <i>Liatris spicata</i> )	$\frac{1}{4}$ pound pls per acre
Lupine ( <i>Lupinus perennis</i> )	$\frac{5}{8}$ pound pls per acre
Bergamot** ( <i>Monarda fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Mexican Hat ( <i>Ratibida coumnraris</i> )	$\frac{1}{8}$ pound pls per acre
Greyheaded Coneflower** ( <i>Ratibida pinnata</i> )	$\frac{1}{4}$ pound pls per acre
Clasping Coneflower ( <i>Rudbeckia amplexicaulis</i> )	$\frac{1}{4}$ pound pls per acre
Passion Flower ( <i>Passiflora incarnate</i> )	$\frac{1}{2}$ pound pls per acre
Wild Quinine ( <i>Parthenium integrifolium</i> )	$\frac{3}{16}$ pound pls per acre

### **Late Flowering Species**

Joe-Pye Weed ( <i>Eupatorium fistulosum</i> )	$\frac{1}{8}$ pound pls per acre
Sweet Joe-Pye Weed ( <i>Eupatorium purpureum</i> )	$\frac{1}{8}$ pound pls per acre
Swamp Sunflower ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre
Maximilian Sunflower ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre

Revised January 17, 2023

## Alabama Supplemental Guidance for CSP Enhancement

Cardinal Flower ( <i>Lobelia cardinalis</i> )	$\frac{1}{8}$ pound pls per acre
Butterfly pea ( <i>Centrosema virginianum</i> )	$\frac{1}{8}$ pound pls per acre
Heath Aster ( <i>Aster pillosus/Symphotrichum pilosum</i> )	$\frac{1}{8}$ pound pls per acre
Wand Goldenrod ( <i>Solidago stricta</i> )	$\frac{1}{8}$ pound pls per acre
Pine Barren Goldenrod ( <i>Solidago fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Tall Goldenrod ( <i>Solidago altissima</i> )	$\frac{1}{8}$ pound pls per acre
Gray Goldenrod ( <i>Solidago nemoralis</i> )	$\frac{1}{8}$ pound pls per acre
Rough Goldenrod ( <i>Solidago rugosa</i> )	$\frac{1}{8}$ pound pls per acre
Swamp Milkweed** ( <i>Asclepias incarnata</i> )	$\frac{3}{8}$ pound pls per acre
Smooth Aster ( <i>Aster laevis</i> )	$\frac{1}{8}$ pound pls per acre
Showy Tickseed ( <i>Bidens aristosa</i> )	$\frac{3}{8}$ pound pls per acre
Tall Tickseed ( <i>Coreopsis tripteris</i> )	$\frac{1}{8}$ pound pls per acre
Florida Beggarweed ( <i>Desmodium floridanum</i> )	$\frac{5}{16}$ pound pls per acre
Dixie Tick Trefoil ( <i>Desmodium tortuosum</i> )	$\frac{5}{16}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Perplexed Tick Trefoil ( <i>Desmodium perplexum</i> )	$\frac{5}{16}$ pound pls per acre
Pine Barren Tick Trefoil ( <i>Desmodium strictum</i> )	$\frac{5}{16}$ pound pls per acre
Indian Blanket** ( <i>Gaillardia pulchella</i> )	$\frac{3}{8}$ pound pls per acre
Sneezeweed ( <i>Helenium autumnale</i> )	$\frac{1}{8}$ pound pls per acre
Evening Primrose ( <i>Oenothera biennis</i> )	$\frac{1}{8}$ pound pls per acre
Yellow Wingstem ( <i>Verbesina alternifolia</i> )	$\frac{5}{16}$ pound pls per acre
White Wingstem ( <i>Verbesina virginica</i> )	$\frac{5}{16}$ pound pls per acre
Iron Weed ( <i>Vernonia altissima</i> )	$\frac{3}{16}$ pound pls per acre
Alabama Iron Weed ( <i>Vernonia noveboracensis</i> )	$\frac{3}{16}$ pound pls per acre

\*PLS = Pure Live Seed (% purity x % germination = % pure live seed)

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example **PLS = .90 X .70 = 63 percent**

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

\*\* Denotes plants that are preferred by native bees. **At least 2 of these should be planted in the mix** of 10 as designated above.



## CONSERVATION ENHANCEMENT ACTIVITY

### E420B

## CONSERVATION STEWARDSHIP PROGRAM

### Establish monarch butterfly habitat

#### Conservation Practice 420: Wildlife Habitat Planting

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

**RESOURCE CONCERN:** Animal

**ENHANCEMENT LIFE SPAN:** 5 years

#### Enhancement Description

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

#### Criteria

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





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

### A. Monarch butterflies

- Habitat will be established and/or maintained using lists of larval host plants and nectar plants suitable for monarch butterfly habitat as the guide. Lists are provided in the NRCS Field Office Technical Guide (FOTG).
- A grass component is commonly needed for ecological stability, weed control, and fuel for prescribed burning. The FOTG provides information on the grass/forb ratio for monarch habitat plantings.
- At least 60% of the forb seeds (pure live seed) in the planting mix will be from the monarch butterfly planting list (FOTG). This will ensure that plantings will provide food (nectar and pollen) for adult monarch butterflies. Milkweed seeds are included in meeting the 60% minimum because milkweeds are excellent nectar plants. The FOTG provides information on the required number of forb species per bloom period (early, mid, or late season) for monarch habitat plantings. Bloom periods are to coincide with monarch presence in the area.
- To provide food for monarch butterfly larvae, plantings will include at least one species of milkweed (*Asclepias* spp.) from the FOTG monarch butterfly planting list. All milkweed species used in the mix must be from this list and shall represent at least 1.5% of the total seeds in the mix. The total seeds include pure live seed from both grass and forbs. Tropical milkweed (*Asclepias curassavica*) shall not be planted.

*Waiver: In some regions, a commercial source of native Asclepias species is limited or not available. In these situations, the NRCS State Conservationist may apply for a waiver, and only require that plantings*



## CONSERVATION STEWARDSHIP PROGRAM

*include monarch nectaring species. In this situation, milkweed seed or plugs are still encouraged to be planted, if possible. If such a waiver is granted, the mix will result in at least 80% of the seed being from the state's monarch nectaring plant list.*

- Any other use of the monarch butterfly habitat area must not compromise its intended purpose.

### **B. Planting criteria for monarch butterfly habitat**

- Site selection should consider existing weed pressures and available methods of control. Delay planting and conduct an additional growing season of weed control if high weed pressure requires aggressive treatment.
  - Weed treatment and plant establishment will be accomplished according to the state's specifications for NRCS Conservation Practice Standard Wildlife Habitat Planting (Code 420) and other practice standards as appropriate.
  - Successful establishment is when:
    - a. The planting is providing at least 80 percent canopy cover, visually estimated;
    - b. Resultant cover consists of at least 500 milkweed plants per acre (approx. 1 stem per each 100-sq. ft.). A milkweed plant is defined as a single stem emerging from the ground; AND
    - c. two targeted nectar plants per bloom period are available when monarchs are present in the state.
  - Insecticides should not be used in the habitat planting area.
  - Herbicides are allowed prior to planting when it is necessary to eliminate competing weeds from a planting area in order for nectar and pollen producing plants to establish.
- C.** After a monarch habitat enhancement has been planted, herbicides may be spot-sprayed to remove broad-leaf weeds, or targeted application of grass-selective herbicides may be used in areas dominated by persistent weedy grasses. Similarly, the entire site may be mowed in the first year post-planting to reduce annual or biennial



weeds that persist (site should be mowed just before dominant annual weeds flower). Mowing height must not be too short so as to compromise the planting. A general guideline is 8 to 10 inches.

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### **D. Operation and maintenance for monarch butterfly habitat**

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



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

- Prior to implementation, provide a map showing the location of proposed habitat areas with notes on land use adjacent to proposed habitat areas to discuss with NRCS staff.
- During implementation, purchase specified seed mix or plant materials that meets monarch-specific seeding or planting requirements provided by NRCS.
- During implementation, follow habitat establishment guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Wildlife Habitat Planting (Code 420).
- After implementation, provide a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred.
- After implementation, provide photo documentation of monarch habitat areas during blooming periods.

### NRCS will:

- Prior to implementation, use WHEG to document 0.5 five planning criteria for the terrestrial habitat resource concern. The WHEG does not need to be a monarch WHEG.
- Prior to implementation, assess habitat condition using a monarch WHEG to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement.  
**Benchmark WHEG score = \_\_\_\_\_ Planned Post Implementation WHEG score = \_\_\_\_\_**
- Prior to implementation, provide participant with suitable larval host plants and nectar plants lists.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Wildlife Habitat Planting (Code 420).
- Prior to implementation, provide participant with a recommended seed mix and planting specifications per above criteria (grass/forb ratio; number of forb species per bloom period for monarch habitat plantings).



- After implementation, verify successful establishment (per planting criteria above).

## CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E420B – Establish Monarch Butterfly Habitat**

**Conservation Practice 420: Wildlife Habitat Planting**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement will be used to establish monarch butterfly habitat in Alabama with seeds or plugs on marginal cropland, field borders, contour buffer strips, and similar areas.

**Some important things to note:**

- A minimum of one-half acre (1/2 ac) of planting must be completed for every 40 acres of land in the CSP application, regardless of land use. (1.25% of total acres)
- Select plants from the approved plant list. At least three must be planted from each bloom period for a total of at least 9 species.
- Area should be treated with appropriate herbicides prior to establishment of pollinator habitat if johnson grass, cogon grass or other hard to eradicate species such as bahia or Bermuda are present.
- NO fertilizer will be applied to the site at planting.
- More diverse mixes will likely result in superior habitat for monarchs and for pollinator communities in general. More diverse mixes can be designed without major increase in cost by adding a mixture of low-priced, moderately-priced and high-priced species.
- List of planned species and rates must be generated with the Alabama Monarch Butterfly Seed Mixture Calculator (Excel spreadsheet). Work with a seed vendor or nursery to make decisions on the seed mix that best suits landowner objectives. Examples of seed mixtures are provided in the Alabama Monarch Butterfly Seed Mixture Calculator. There are many species mixture possibilities.
- Planting multiple species of Coreopsis or Rudbeckia should be avoided.
- Maintenance shall be completed on these areas beginning the second winter after establishment outside of the season when monarch larvae or adults are present. December and January are the best months to perform maintenance in Alabama. Some form of maintenance must be completed on all acres at least once every 3 years. The best regime is to implement maintenance on 1/3 of the acreage annually. Prescribed burning is the recommended form of maintenance, however, mowing high (12 inches) acceptable. Mowing could allow a duff layer to develop and potentially limit pollinator plant growth and survival. Therefore, if mowing is the main form of maintenance, then either fire or light disking must be used at least once every 3<sup>rd</sup> maintenance cycle to break the duff layer. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point.
- Spot spraying of invasives or unwanted vegetation is recommended but ensure herbicide label directions are followed.

\*Some information was obtained from the South Carolina NRCS monarch butterfly habitat establishment job sheet.

## Alabama Supplemental Guidance for CSP Enhancement

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- SEED INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



CONSERVATION ENHANCEMENT ACTIVITY

E472A

CONSERVATION STEWARDSHIP PROGRAM

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

Conservation Practice 472: Access Control

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

RESOURCE CONCERN: Water

ENHANCEMENT LIFE SPAN: 10 years

Enhancement Description

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

Criteria

- Manage livestock access to provide positive benefits to surface water quality, resulting in better manure distribution and reduction of nutrient input into surface waters like streams, ditches and other waterbodies.
- Use-regulating activities (e.g., gates, fences, and other barriers) shall be implemented to eliminate livestock access to streams to reduce nutrients in surface water.
- Limit stream access to hardened stream crossings or water access points. Preferably, install alternative water sources away from water courses and waterbodies.
- Implement riparian area grazing management strategies, including herding and seasonal exclusion with a rotational grazing system.

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

- Activities will complement the application schedule and life span of other practices specified in the conservation plan.
- Livestock activity will be monitored and regulated, and management plans will specify the intent, intensity, amounts, and timing of livestock exclusion access or exclusion from the target water course or waterbody. Activities may involve temporary or permanent livestock exclusion.
- Placement, location, dimensions, materials (e.g., gates), frequency of use (e.g., continuous), and frequency of monitoring shall be described for each activity,.





## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation, obtain a written grazing plan with guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand from a qualified professional.
- For riparian grazing management strategies, prior to implementation, provide a grazing plan that includes a written narrative describing planned season of livestock grazing use.
- During implementation, keep pasture/herd in/out records.
- After implementation, make the following items available for review by NRCS to verify implementation of the enhancement:
  - Written grazing plan
  - Pasture/herd in/out records
  - Map showing locations of installed structures

#### NRCS will:

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



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

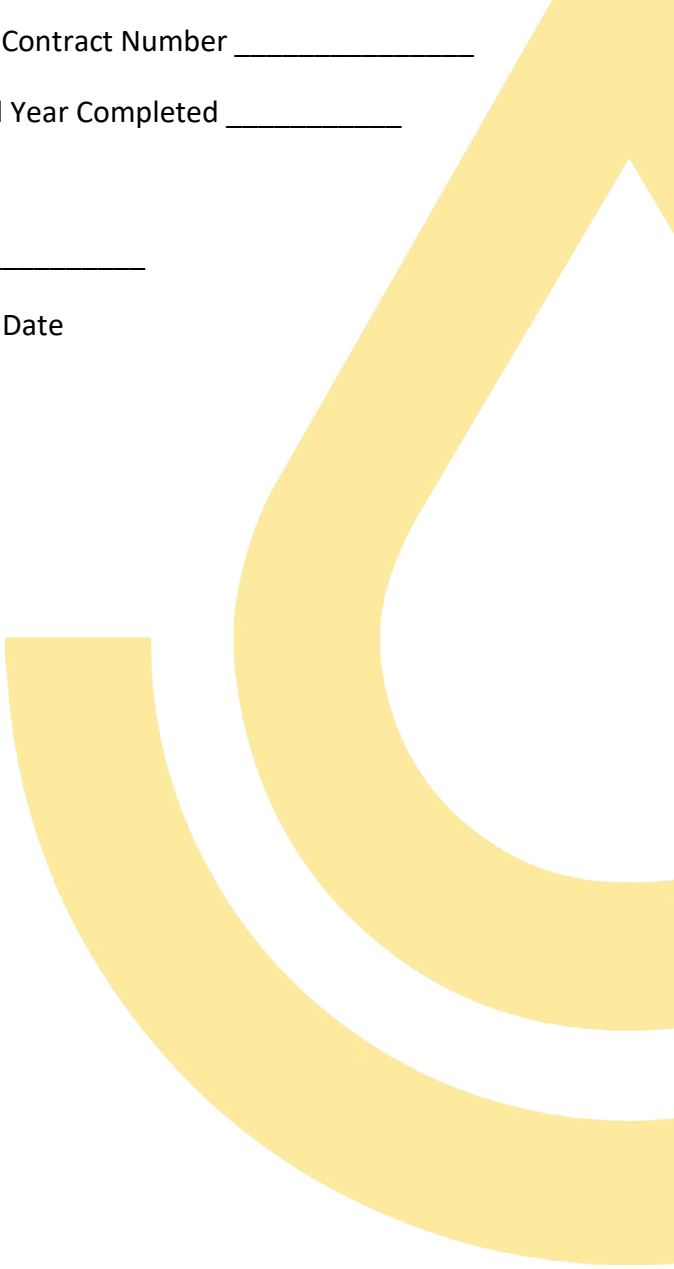
Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

Date



## ALABAMA – E472A Supplement- Manage livestock access to waterbodies to reduce nutrients or pathogens to surface water

Install fences and manage grazing to restrict livestock access to streams and waterbodies. Applicable for ponds and blue-line streams on the topographic map.

### Requirements:

1. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock must be restricted from streams.
2. Fences must be constructed according to the NRCS Conservation Practice Standard 382-Fence. Fences may be barbed wire, woven wire, or high-tensile electric depending on the livestock type. Fences should generally be located a minimum of 30 ft. from the streambank so that the existing grass may serve as a vegetated buffer and to allow access on the interior for vegetation management and maintenance issues. Livestock may only be allowed to flash-graze restricted areas on an infrequent basis. Livestock crossings should be limited to existing, stable crossings.
3. Average annual livestock dry matter needs will be balanced with available forage without deficiency for the yearly summary. The Forage/Animal Balance Worksheet will be completed to document.
4. Livestock will be rotated between at least 3 pastures in a particular functional-group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Starting and ending grazing periods will meet the guidelines in the table below. Pastures will be sized and stocked to facilitate meeting the requirements for grazing heights and resting periods. It is anticipated that with a three-pasture rotation that each pasture would rest about 66 percent of the grazing cycle. Additional pastures are preferred and will enable more forage rest.
5. A contingency plan will be developed denoting the use of sacrifice areas for pasture management during drought or other weather-related events. These areas will be labeled on the conservation plan map.
6. Manure, biosolids, or compost should be applied according to NRCS Conservation Practice Standard 590-Nutrient Management.
7. Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Records should be submitted quarterly. The Pasture Condition Score may be used to document improvements in grazing management.

Grazing will be managed according to the Prescribed Grazing (528) Standard.

The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table). Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.

### FORAGE GUIDELINES FOR PRESCRIBED GRAZING SYSTEMS

Common Forages	Begin Grazing (in)	End Grazing (in)	Usual days of Rest
Alfalfa grazing types	10	4	35 - 40
Bahiagrass	6	2	10 - 20
Bermudagrass common	5	2	7 - 10
Bermudagrass hybrid	6	3	7 - 10
Big Bluestem	18	10	30 - 45
Dallisgrass	6	3	7 - 15

Eastern Gamagrass	15	8	30 - 45
Tall Fescue	6	3	15 - 30
Indiangrass	12	6	30 - 40
Orchardgrass	8	3	15 - 30
Switchgrass	18	10	30 - 45

## Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

## Pasture Condition Score Sheet

Operator:				Date:		
Evaluator:				Pasture ID:		
Soil(s), ESD(s) and or FSG(s):					Livestock type:	
Current Season's Precipitation (check one)		Above Normal ◦	Normal ◦	Below Normal ◦		
Seasonal Temperature Trend (check one)		Above Normal ◦	Normal ◦	Below Normal ◦		
Evaluate the site and rate each indicator based upon your observations. Scores for each indicator may range from 1 to 5. Sum the indicator scores to determine overall pasture condition score.						
Indicator	1 Point	2 Points	3 Points	4 Points	5 Points	Score
<b>Percent Desirable Plants*</b> (Dry Weight; for Livestock Type)	Desirable species <20% of stand.	Desirable species 20 – 40% of stand.	Desirable species 41 – 60% of stand.	Desirable species 61 – 80% of stand.	Desirable species exceed 80% of stand.	
<b>Percent Legume by Dry Weight</b>	<5% <b>OR</b> >50% bloating legumes.	5-10% legumes <b>OR</b> >40% bloating legume.	11-20% legumes.	21-30% legumes.	31-40% legumes. No grass loss; grass may be increasing.	
<b>Live (includes dormant) Plant Cover</b>	Less than 40% is live leaf canopy. Remaining is either dead standing material, or bare ground.	40-65% is live leaf canopy. Remaining is either dead standing material, or bare ground.	66-80% live leaf canopy. Remaining is either dead standing material, or bare ground.	81-95% live leaf canopy. Remaining is either dead standing material, or bare ground.	More than 95% live (non-dormant) leaf canopy. Remaining is either dead standing material, or bare ground.	
<b>Plant Diversity by Dry Weight</b> (*See footnote at bottom of page)	<b>Diversity:</b> Very low	<b>Diversity:</b> Low	<b>Diversity:</b> Moderate	<b>Diversity:</b> High	<b>Diversity:</b> Very high	
	<50% desirable species  <b>OR</b> 1 dominant desirable species in 1 functional group  <b>OR</b> No dominant desirable species and all minor species in each functional group totaling <15%	2 dominant desirable species in 1 functional group  <b>OR</b> 2 functional groups each represented by minor species totaling ≥15%	3 dominant desirable species in 1 functional group  <b>OR</b> 2-3 dominant desirable species in 2 functional groups  <b>OR</b> 3 functional groups each represented by minor species totaling ≥15%	4 dominant desirable species in 2 functional groups  <b>OR</b> 3 dominant desirable species in 3 functional groups  <b>OR</b> 3 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	4 dominant desirable species in 3 functional groups  <b>OR</b> 4 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	
<b>Plant Residue and Litter as Soil Cover</b> (Pull back canopy)	Bare soil is very easily seen;	Openings of bare soil can be seen fairly easily;	Small openings of bare soil can be seen, but minimal;	No bare soil is easily seen;	No bare soil is seen;	
	There is <20% cover on the soil surface or it is excessive, and slow to break down.	Soil cover is 21-40%.	Soil cover is 41-60%.	Soil cover is 61-80%.	Soil cover is >80% with good biological activity and decomposition of older residue.	
<b>Grazing Utilization and Severity</b>	Pasture is overgrazed throughout.	Pasture consists primarily of overgrazed and/or refused areas (former dung areas, older plants, undesired plants).	Pastures show uneven grazing throughout with heavier grazing near water or feeding areas, or distinct zone grazing.	Pasture grazed evenly throughout with minimal overgrazing with some under grazed small areas and heavier use near water sources.	Pasture grazed evenly throughout with no overgrazing.	

\*Use NRCS plant list for livestock species. Functional groups are as appropriate for your state (cool-season grasses, legumes, warm-season grasses, non-leguminous forbs). **Any time there are more undesirables than desirables, it will be 1 point. Desirable species must total more than 50% of the total biomass. Dominant species are ≥15%. Functional groups must be ≥15% of stand to be counted.**

Indicator	1 Point	2 Points	3 Points	4 Points	5 Points	Points
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<b>Livestock Concentration Areas</b> (If field <1 acre, see ** footnote)	Livestock concentration areas are within 100 feet of, or are a direct conveyance to surface water, and cover more than 0.1 acre, including trails.	Livestock concentration areas are within 100 feet of, or are a direct conveyance to surface water, and cover less than 0.1 acre, including trails.	Livestock concentration areas are farther than 100 feet from and are not a direct conveyance to surface water, and cover more than 0.1 acre, including trails.	Livestock concentration areas are farther than 100 feet and are not a direct conveyance to surface water, and cover less than 0.1 acre, including trails.	Livestock concentration areas, including trails, not present.	
<b>Soil Compaction and Soil Regenerative Features</b> (**See footnote at bottom of page)	<b>Compaction:</b> Dense or thick platy layer very distinct;	<b>Compaction:</b> Dense or moderate platy layer noticeable;	<b>Compaction:</b> Thin dense or platy layer still present;	<b>Compaction:</b> Minor dense or platy layer; good aggregates common (crumbly soil);	<b>Compaction:</b> No dense or platy layers; crumbly soil throughout;	
	<b>Roots:</b> Dominantly horizontal; most shallow/sparse;	<b>Roots:</b> Numerous horizontal; moderate amount shallow/sparse;	<b>Roots:</b> Some horizontal with increasing downward;	<b>Roots:</b> Few horizontal, more downward through the soil profile;	<b>Roots:</b> Abundant growth primarily downward through the soil profile;	
	<b>Color:</b> Surface horizon same as subsoil;		<b>Color:</b> Surface horizon moderately darker than subsoil;		<b>Color:</b> Surface horizon dramatically darker than subsoil;	
	<b>Soil Life:</b> Few or no signs.	<b>Soil Life:</b> Signs scattered in surface layer.	<b>Soil Life:</b> Signs scattered throughout.	<b>Soil Life:</b> Signs numerous throughout.	<b>Soil Life:</b> Signs abundant throughout.	
<b>Plant Vigor</b>	No plant recovery after grazing/harvest. Pale, yellow or brown, or severe stunting of desirable forage.	Some recovery. Yellowish green forage, or moderately or slight stunting of desirable forage.	Adequate recovery of desirable forage. Yellowish and dark green areas due to manure and urine patches.	Good recovery of desirable forage. Light green and dark green forage present.	Rapid recovery of desirable forage. All healthy green forage.	
<b>Erosion</b>  (Circle all that apply; the overall indicator score will be the lowest rating indicated)	<b>Sheet and Rill:</b> Plant density is insufficient to stop runoff, with poor infiltration. Erosion easily visible throughout pasture;	<b>Sheet and Rill:</b> Plant density slows runoff. Erosion present and easily seen on steeper terrain;	<b>Sheet and Rill:</b> Plant density good and runoff moderate. If present, erosion concentrated on heavily used areas;	<b>Sheet and Rill:</b> Plant density high, runoff low, good infiltration. May have evidence of past erosion if present;	<b>Sheet and Rill:</b> Plant density high, no runoff, good infiltration. No evidence of present or past erosion;	
	<b>Wind:</b> Severe scoured areas and deposition throughout;	<b>Wind:</b> Scoured areas common, deposition effecting plants;	<b>Wind:</b> Occasional scoured areas, litter windrolled;	<b>Wind:</b> Minimal soil exposed, some detached vegetation windrolled, minor plant damage;	<b>Wind:</b> No exposed soil;	
	<b>Streambank and/or Shoreline:</b> Banks bare, major sloughing, no bank vegetation;	<b>Streambank and/or Shoreline:</b> More than half the bank vegetation trampled; sloughing.	<b>Streambank and/or Shoreline:</b> Less than half the bank vegetation trampled; eroding at crossing/entrances.	<b>Streambank and/or Shoreline:</b> Eroding at crossings, entrances; all the bank vegetation is intact and banks are stable.	<b>Streambank and/or Shoreline:</b> Vegetation intact and stable, hardened crossings and alternative water sources used;	
	<b>Gully:</b> Very large mass movement, caving sides.	<b>Gully:</b> Advancing upslope, increasing fingering extensions.	<b>Gully:</b> Not all active but extensions present.	<b>Gully:</b> Stable with vegetative cover.	<b>Gully:</b> None, drainage ways vegetative.	

\*\* If field size is less than 1 ac. Use 10% of field size in place of 0.1 acre. \*\*\*Use a shovel. Root and Compaction subindicators are primary and should be considered first. Soil color and soil life are secondary subindicators which can be considered where applicable.

Overall Pasture Condition Score	Individual Indicator Score	Management Change Suggested
45 to 50	5	No changes in management needed at this time.
35 to 45	4	Minor changes would enhance, do most beneficial first.
25 to 35	3	Improvements would benefit productivity and/or environment.
15 to 25	2	Needs immediate management changes, high return likely.
10 to 15	1	Major effort required in time, management and expense.

Overall Pasture Condition Score =

Comments/Notes:





CONSERVATION ENHANCEMENT ACTIVITY

E511A

CONSERVATION STEWARDSHIP PROGRAM

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

Conservation Practice 511: Forage Harvest Management

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

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 year

Enhancement Description

Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape (See State Wildlife Action Plan for species list). Conservation measures include timing of harvest, idling land during the nesting or fawning period, and applying harvest techniques that reduce mortality to wildlife.

Criteria

- Forage will be harvested at a frequency and height that optimizes the desired forage stand, plant community, and stand life. Follow State Cooperative Extension Service (CES) recommendations for forage harvest based on stage of maturity, moisture content, length of cut, stubble height, and harvest interval. The following criteria must be met:
  - Harvest forage at the stage of maturity that provides the desired quality and quantity without compromising plant vigor and stand longevity.
  - Harvest silage/haylage crops within the optimum moisture range for the type of storage method(s) or structure(s) being utilized. CES recommendations must be followed for optimum moisture content and levels, as well as methods and techniques to monitor and/or determine moisture content and

E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	July 2020	Page   1
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levels. Avoid fermentation and seepage losses of digestible dry matter from direct cut hay crop silage (moisture content >70%) by treatment with chemical preservatives or addition of dry feedstuffs. For optimal dry hay quality, rake hay at 30% to 40% moisture and ted or invert swaths when moisture is above 40%. To preserve forage quality and quantity, bale field-cured hay at 15% to 20% moisture and bale force air-dried hay at 20% to 35% moisture.

- When harvested for ensilage, forage will be chopped to a size appropriate for the type of storage structure used and optimal effective fiber. The selected length of chop will allow adequate packing to produce the anaerobic conditions necessary to ensure the proper ensiling process. A shorter chop length on very dry silage may help to ensure good packing and adequate silage density.
- Cut forage plants at a height that will promote the vigor and health of the desired species. Cutting heights will provide adequate residual leaf area; adequate numbers of terminal, basal, or auxiliary tillers or buds; insulation from extreme heat or cold; and/or unsevered stem bases that store food reserves needed for full, vigorous recovery. Follow CES recommendations for proper stubble heights to avoid winterkill of forage species in cold climates.
- Forage shall not contain contaminants that can cause illness or death to the animal being fed or rejection of the offered forage. Check CES contaminant notices, cautions, and recommendations for the specific harvest site location and area.
- Appropriate harvest schedule(s), cover patterns, and minimum plant heights to provide suitable habitat for the desired wildlife species should be implemented and maintained (See State Wildlife Action Plan).
- Time harvests to benefit the desired wildlife species by following state guidelines.
- Producer will apply and maintain at least two of the following management actions specified to improve or protect grassland functions for the state-identified or targeted wildlife species:

E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	July 2020	Page   2
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## CONSERVATION STEWARDSHIP PROGRAM

- Do not cut hay on at least 1/3 of the hay acres each year. Idle strips or blocks must be at least 30 feet wide.
- For at least 1/3 of the hay acreage, hay cutting must occur outside of the primary nesting or fawning seasons based on state-established dates for the targeted species.
- Increase forage heights after mowing to state-specified minimum heights for the targeted species on all hay acres.
- For all harvest activities that will occur during the nesting/fawning season, the producer will implement at least two of the following actions to flush wildlife during the harvest operation:
  - Attach a flush bar on the mower/harvest equipment.
  - Conduct all harvest/mowing during daylight hours.
  - Begin the harvest pattern either:
    - On one end of the field, working back and forth across the field or
    - In the center of the field, working outward.



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

- Y Prior to implementation, develop a map delineating the fields selected for improving wildlife habitat and enrolled in the enhancement.
- Y Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity while maintaining or improving wildlife habitat. Plan must meet NRCS Conservation Practice Standard Forage Harvest Management (CPS 511) and the criteria for this enhancement. Coordinate the plan with NRCS Conservation Practice Standard Upland Wildlife Habitat Management (645), as applicable. At a minimum, plan must include the following for the forage harvest operations:
  - o Goals, objectives, and specific purpose (improve wildlife habitat values)
  - o At least two of the management actions specified for improving or protecting grassland functions for the state-identified target wildlife species
  - o Implementation of at least two actions to flush wildlife during the harvest operation for all harvest activities that will be conducted during the nesting/fawning season
  - o Forage species to be harvested
  - o Details for each dominant forage species to be harvested:
    - Method of harvest
    - Harvest timing (stage of maturity, optimal harvest moisture content, length of cut)
    - Stubble height to be left
    - Harvest interval (including late harvest, if applicable)
    - Contaminant avoidance recommendations
- Y Prior to implementation, ensure forage harvesting tool/machinery is capable of cutting the forage at the height required to provide suitable habitat for the desired wildlife species without compromising plant vigor and stand longevity.

E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	July 2020	Page   4
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# CONSERVATION STEWARDSHIP PROGRAM

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

<b>Wildlife Species of Concern</b>	
<b>Habitat Requirements, such as plant heights to provide suitable habitat</b>	

- Y During implementation, keep the following documentation for each field:

Field	Forage species harvested	Harvest height (inches)	Harvest Date

- Y During implementation, time harvests to benefit the desired wildlife species.
- Y During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- Y During implementation, notify NRCS of any planned changes to ensure enhancement criteria are met.
- Y After implementation, make documentation and photographs of forage cutting heights available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- Y As needed, provide technical assistance to meet enhancement criteria.



# CONSERVATION STEWARDSHIP PROGRAM

- Y Prior to implementation, verify a map has been developed delineating the fields that will have the enhancement implemented.
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standards Forage Harvest Management (Code 511) and Upland Wildlife Habitat Management (Code 645) as they relate to implementing this enhancement, including applicable state-specific job sheets.
- Y Prior to implementation, provide and explain the State Wildlife Action Plan as it relates to implementing this enhancement.
- Y Prior to implementation, provide technical assistance, as needed, to:
  - o Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat.
  - o Develop specifications detailing the wildlife protection measures and habitat improvement.
- Y During implementation, evaluate any planned changes to ensure enhancement criteria are met.
- Y After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

\_\_\_\_\_

Date

E511A - Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape	July 2020	Page   6
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**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E511A – Harvest of crops (hay or small grains) using measures that allow desired species to flush or escape**

**Conservation Practice 511: Forage Harvest Management**

*BRIEF DESCRIPTION OF ENHANCEMENT:* This enhancement will be used to reduce wildlife mortality associated with hay and small grain harvest by applying conservation measures include timing of harvest, idling land during the nesting or fawning period, and applying harvest techniques that reduce mortality to wildlife.

*DETAILED REQUIREMENTS OF ENHANCEMENT:*

Landowner will **apply and maintain at least two** of the following management actions specifically for improving or protecting wildlife species:

\*Grassland birds may be drawn to nest in hay fields. 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. Fields can be divided into sections and mowed on a rotational basis each year in order to provide for some useable habitat all during the nesting period. These areas provide alternative adjacent habitat and allow birds additional areas to nest or re-nest (for those that failed to successfully nest in active hayfields).

\*For at least 1/3 of the hay acreage, hay cutting must be either before and/or after the primary nesting season based on nesting dates for the targeted species. The nesting dates in Alabama are from April 1 to July 15. The following recommended measures can be taken to minimize mortality of nesting adults and fledging juveniles. These methods will minimize nest destruction by restricting/deferring haying activities. Leave additional transition zones/corridors/escape cover extending at least 30 feet wide from the edge of a field, fence row, or water course, undisturbed during the primary nesting period. These areas provide adjacent habitat for cover and shelter by increasing edge habitat and establishing travel corridors between habitats. Transition zones that “feather” habitat changes with different heights and types of cover (from trees to open fields) provide a mixture of foods (such as seeds, insects, berries) and cover (such as nesting, brood-rearing, and escape). It is important to connect various land uses and desired cover types with travel corridors that can also provide food and escape cover. In hay fields where wildlife cover and shelter are absent or inadequate, woody vegetation may be planted or allowed to naturally re-vegetate by preserving or encouraging existing shrubby and woody cover, tall grasses, annual weed patches, and briar patches, such as blackberries, especially in field corners or along water courses.

\*Increase forage heights after mowing to state specified minimum heights for the targeted species on all hayed acres. State targeted species and minimum mowing heights:

- For introduced grass pastures: the Eastern Meadowlark--5 inch residual grass height.
- For native grass pastures: the Northern Bobwhite--8 inch residual grass height.

## Alabama Supplemental Guidance for CSP Enhancement

**For all harvest activities that will be conducted during the nesting season, the producer will implement at least two of the following** to flush wildlife from mowed areas during the harvest operation to reduce mortality to wildlife. (Record producer's decisions in the "Other Management" section of the attached job sheet):

- ✓ Attach a flush bar on the mower/harvest equipment.
- ✓ Conduct all harvest/mowing during daylight hours. Nesting adults and roosting individuals are less likely to flush from cover during the night.
- ✓ *Haying patterns will be either:*
- ✓ Begin on one end of the field and work back and forth across the field, cutting the swath right beside the one that was cut on the last pass.

OR

- ✓ Begin in the center of the field and work outward to provide cover that allows fledgling birds to escape to the edge of the field (see Fig. 2).

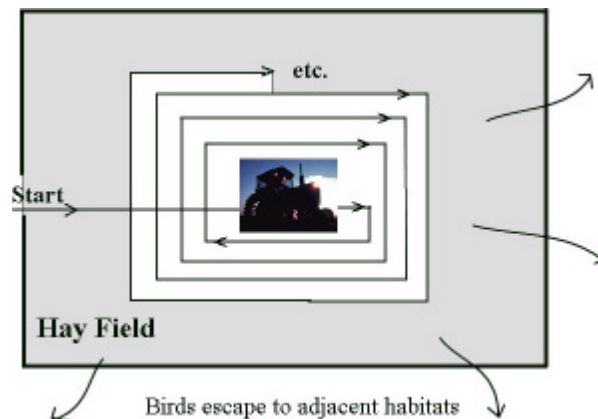


Fig. 2. Hay fields should be mowed from the center outward to allow birds to escape to adjacent habitats.

### General Harvest Specifications

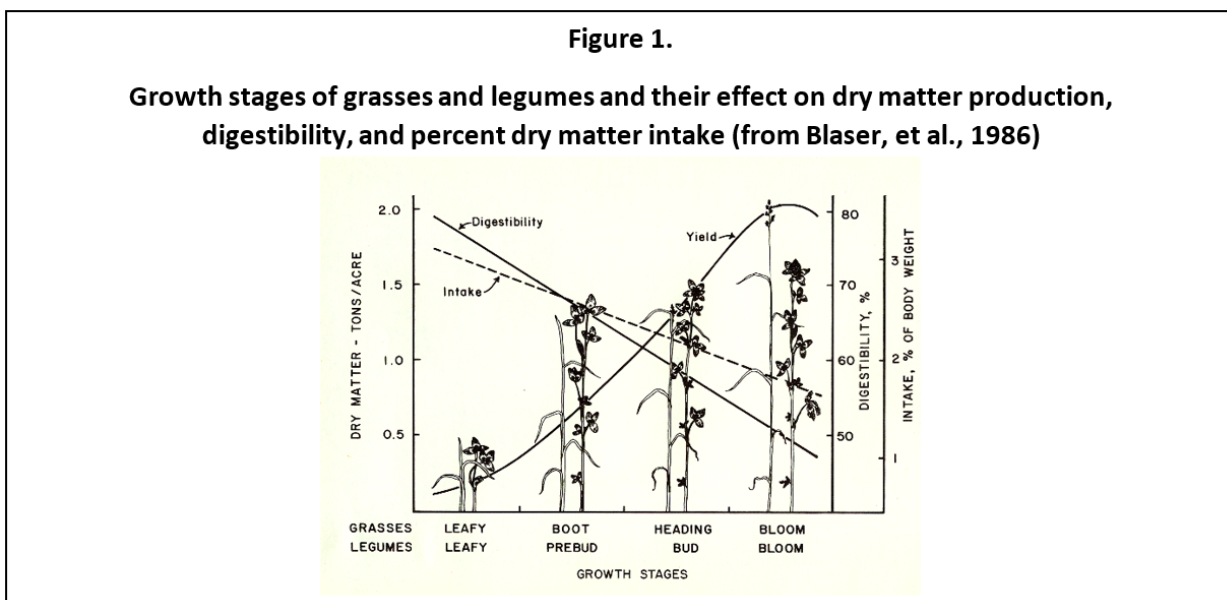
1. Forages will be harvested at a frequency and height that will maintain a desired healthy plant community through its life expectancy (see Tables 1-3).
2. Harvest forages at a maturity that provides the desired quality and quantity for the intended use while maintaining optimum re-growth conditions.
3. Forage will be harvested within the optimum moisture range for the type of storage



## Alabama Supplemental Guidance for CSP Enhancement

structure used.

4. For nutrient uptake, use harvesting strategies to maximize uptake of available/targeted nutrients while maintaining an acceptable level of forage quality.
5. After harvest, leave enough leaf area on the plant to allow for plant survival and rapid re-growth. If forages are harvested below recommended minimum cutting height, re-growth is slowed, weeds may increase, productivity may decline, and the stand may die.
6. Allow enough recovery time after harvest to allow the forages to accumulate carbohydrate reserves necessary for re-growth in the plant crown, rhizomes, stolons, or roots.



As forages mature, digestibility and intake decrease. Deciding when to harvest hay is a compromise between quality and yield. The true quality test for hay is animal performance (see Figure 1).

<b>Table 1. Recommended Stages to Harvest Various Hay Crops</b>	
<b>SPECIES</b>	<b>STAGE TO HARVEST FOR ACCEPTABLE QUALITY &amp; YIELD</b>
Alfalfa	Bud stage for first cutting, one-tenth bloom for second and later cuttings. For spring seedlings, allow the first cutting to reach mid- to full bloom
Tall Fescue, orchardgrass	Boot to early head stage for first cut, afterward at 4 to 6 week intervals, or re-growth is about 10 inches
Red, arrowleaf, or crimson clovers	Early bloom
Small grains	Boot to early head stage

## Alabama Supplemental Guidance for CSP Enhancement

Soybeans	Mid- to full bloom and before bottom leaves begin to fall
Sericea lespedeza	Height of 15 to 18 inches
Annual lespedeza	Early bloom and before bottom leaves begin to fall
Ladino or white clover	Cut at correct stage for companion grass
Bermudagrass	15 to 18 inch height for first cutting, harvest every 4 to 5 weeks or when 15 inches high
Sudangrass, sorghum-sudan hybrids, pearl millet	Height of 30 to 40 inches
Bahiagrass	Height of 12 inches or every 4 – 5 weeks
Johnsongrass	Harvest at heading
Dallisgrass	Boot to bloom
Native grasses (eastern gamagrass, Indiangrass, big bluestem, switchgrass)	Harvest in early boot stage at 45 day intervals
Ryegrass	Boot to early head
Perennial peanut	Bloom, with 4-6 week intervals

**Table 2. Recommended Stages to Harvest Various Silage Crops**

SPECIES	STAGE TO HARVEST FOR ACCEPTABLE QUALITY & YIELD
Corn	Kernels full dent
Grain sorghum	Late milk to late dough, before leaf blades begin to die
Forage sorghum	40 inches or late boot stage
Sudangrass, johnsongrass, pearl millet	40 inches or boot stage, whichever comes first
Small grains, ryegrass	Boot to early heading
Soybeans	Late bloom - seed forming in pods and before lower leaves fall
Alfalfa, red clover	Bud to early bloom
Tall fescue, orchardgrass	Boot to early heading; afterward at 4 to 6 week intervals or when 10 inch of re-growth
Hybrid bermudagrass	15 inches at first harvest; afterward at 4 to 5 week intervals
Legume-grass mixtures	Boot to early heading for grass component

## Alabama Supplemental Guidance for CSP Enhancement

**Table 3. Recommended Stubble Height and Approximate Recovery Period After Hay Harvest**

Species	Recommended Minimum Stubble Height after Harvest (inches)	Approximate Recovery or Rest Period <sup>1</sup> (days)
<b>Grasses</b>		
Bahiagrass	2-3	20-28
Bermudagrass, common	2-3	18-28
Bermudagrass, hybrid	3-5	18-28
Big Bluestem	4	25-40
Dallisgrass	2-4	21-30
Eastern Gamagrass**	8	28-45
Indiangrass	5	28-40
Johnsongrass	6	21-30
Orchardgrass	3-5	20-30
Ryegrass	2-3	14-25
Small Grains	3-4	14-25
Sorghum-sudan hybrids	6-8	21-30
Switchgrass**	8	30-45
Tall Fescue	3-4	21-30
<b>Legumes</b>		
Alfalfa	3	20-25
Clover, arrowleaf or crimson	2-4	14-25
Clover, red	2-3	18-25
Clover, subterranean or white	2-3	18-30
Lespedeza, annual	2-3	20-30
Perennial peanut	4	28-42
Sericea Lespedeza	4-6	18-25

Based on favorable growing conditions for the plant. Longer cycles may be needed during stress periods such as extreme heat, cold, wetness, or drought. Shorter cycles may result during favorable growing conditions.

\*For perennial crops and annual crops that will be harvested by more than one cutting refer to the minimum cutting height in Table 3.

\*\*The last cutting should be early enough to allow for re-growth to build up carbohydrates in the root systems before frost. After frost, the re-growth may be cut for hay or grazed.

## Alabama Supplemental Guidance for CSP Enhancement

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) OF APPLIED PRACTICE
- LIST ACRES AND DESCRIPTION OF PRACTICE APPLIED BY FIELD
- PHOTO DOCUMENTATION OF ENHANCEMENT.
- COMPLETE TABLE FOUND ON PAGE 5 WHICH INCLUDES FORAGE TYPE, HARVEST HEIGHT, AND HARVEST DATE, AS WELL AS WILDLIFE SPECIES OF CONCERN.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E511B**

**CONSERVATION STEWARDSHIP PROGRAM**

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

**Conservation Practice 511: FORAGE HARVEST MANAGEMENT**

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

**RESOURCE CONCERN ADDRESSED:** Animals

**ENHANCEMENT LIFE SPAN:** 1 year

**Enhancement Description**

The timely cutting and removal of forages from the field as hay, green chop, or ensilage in such a way, and in time frames, to optimize both forage yield/quality and wildlife cover and shelter and/or continuity between otherwise disconnected habitats.

**Criteria**

- Specify the wildlife species of concern on the state-approved NRCS Wildlife Habitat Evaluation Guide (WHEG). The species of concern must be one that is present for at least part of their life cycle in the geographical/physiographic region.
- The state's WHEG will be completed by a NRCS biologist or partner wildlife biologist. Cover and shelter or continuity habitat requirements for the wildlife species of concern must be specified on the WHEG. The total WHEG score after installation of this practice must be 0.60 or greater.
- Provide suitable habitat for desired wildlife species. This may require changes to harvest schedules, cover patterns, and minimal plant heights while managing the desired forage stand, plant community, and stand life.

E511B - Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity	July 2020	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

- Time harvest to benefit the desired wildlife species by following state guidelines. Whenever possible, avoid harvest during the primary nesting season, harvest during daylight hours, and harvest in patterns (e.g. - beginning on one end of the field and working back and forth across the field or beginning in the center of the field and working outward).
- Cut forage at a height that will promote the vigor while leaving minimal stubble heights required by the desired wildlife species and the Cooperative Extension Service recommendations to avoid winterkill in cold climates.
- Harvest forage without compromising plant vigor and stand longevity and at the stage of maturity that provides the desired quality and quantity to the degree possible while still providing suitable habitat for the desired wildlife species.
- Harvest silage/haylage within the optimum moisture range for the type of storage utilized. Follow Cooperative Extension Service recommendations for moisture content. For optimal dry hay quality, rake at 30% to 40% moisture and ted or invert swaths when moisture is above 40%. Bale field cured hay at 15% to 20% moisture.



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

Participant will:

- Y Prior to implementation, ensure forage harvesting tool/machinery is capable of cutting the forage at the height required to provide suitable habitat for the desired wildlife species without compromising plant vigor and stand longevity.
- Y Prior to implementation, review the map delineating the fields selected for improving wildlife cover and shelter and enrolled in the enhancement.
- Y Prior to implementation, develop a plan to harvest forage in a manner that protects stand longevity and also maintains or improves wildlife habitat. Plan must include specifications detailing the wildlife protection measures, such as selecting time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods. Refer to NRCS Conservation Practice Standard Forage Harvest Management (Code 511).
- Y Prior to implementation, provide the forage harvest plan to NRCS for review to confirm it meets the criteria of the enhancement.
- Y During implementation, take photographs of forage cutting heights with fields and date of harvest identified.
- Y During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- Y During implementation, keep the following documentation for each field:

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



# CONSERVATION STEWARDSHIP PROGRAM

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

NRCS will:

- Y As needed, provide technical assistance to meet the criteria of the enhancement.
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- Y Prior to implementation, an NRCS biologist or partner wildlife biologist will complete the state-approved NRCS WHEG. Specific species targeted will be notated on the WHEG, and total score after implementation must equal 0.60 or greater.

<b>Wildlife Species of Concern</b>	
<b>Cover &amp; Shelter Requirements</b>	
<b>Planned WHEG Score after implementation</b>	

- Y Prior to implementation, verify a map has been developed delineating the hayfields that will have the enhancement implemented.
- Y Prior to implementation, NRCS will provide technical assistance, as needed to:
  - o Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat. Plan must meet requirements of NRCS Conservation Practice Standard Forage Harvest Management (Code 511).





# CONSERVATION STEWARDSHIP PROGRAM

- Develop specifications detailing the wildlife protection measures, such as selecting time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods.
- Υ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- Υ After implementation, verify the planned forage harvest was completed to specifications developed for the fields delineated.
- Υ After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.
- Υ If changes were made after implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

<b>Wildlife Species of Concern</b>	
<b>Cover &amp; Shelter Requirements</b>	
<b>WHEG Score after Implementation</b>	

**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

Date



E511B - Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity	July 2020	Page   6
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**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E511B – Forage harvest management that helps maintain wildlife habitat cover, shelter or continuity**

**Conservation Practice 511: Forage Harvest Management**

*BRIEF DESCRIPTION OF ENHANCEMENT:* This enhancement is designed encourage highest yield and quality of harvested forage (hay or silage), while at the same time maintaining adequate wildlife habitat.

*DETAILED REQUIREMENTS OF ENHANCEMENT:*

This enhancement requires the timely cutting and removal of forages from the field as hay or silage in such a way and in time frames that optimize both forage yield and quality, while maintaining a base level of wildlife habitat.

Landowner will maintain minimum harvest heights after removing forage from the field. For eastern meadowlark in non-native forage types (Bermuda, bahia, tall fescue, dallisgrass, etc.), maintain 5-inch residual grass heights on 25% of the field during the nesting season from April 1 to July 15<sup>th</sup>. For bobwhite quail in native grass forage types (big/little bluestem, indiagrass, switchgrass, eastern gamagrass, etc.), maintain 8-inch residual grass heights on 25% of the field during the nesting season from April 1 to July 15<sup>th</sup>. **Note that increased residual or stubble heights will require modifications to mowing equipment. Do not plan this enhancement if equipment cannot be altered to add high-clearance skid shoes or other suitable device.** Additional information may be found in [SP731-I.pdf \(tennessee.edu\)](#).

For all harvest activities that will be conducted during the nesting season (April 1 – July 15), the producer will **implement at least two** of the following to flush wildlife from mowed areas during the harvest operation to reduce mortality to wildlife:

- ✓ Attach a flush bar on the mower/harvest equipment.
- ✓ Conduct all harvest/mowing during daylight hours. Nesting adults and roosting individuals are less likely to flush from cover during the night.
- ✓ *Haying patterns will be either:*
  - a. Begin on one end of the field and work back and forth across the field, cutting the swath right beside the one that was cut on the last pass.

OR

- b. Begin in the center of the field and work outward to provide cover that allows fledgling birds to escape to the edge of the field (see Fig. 2).

## Alabama Supplemental Guidance for CSP Enhancement

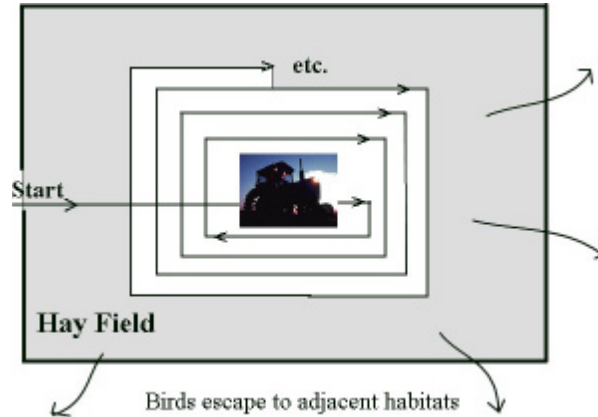
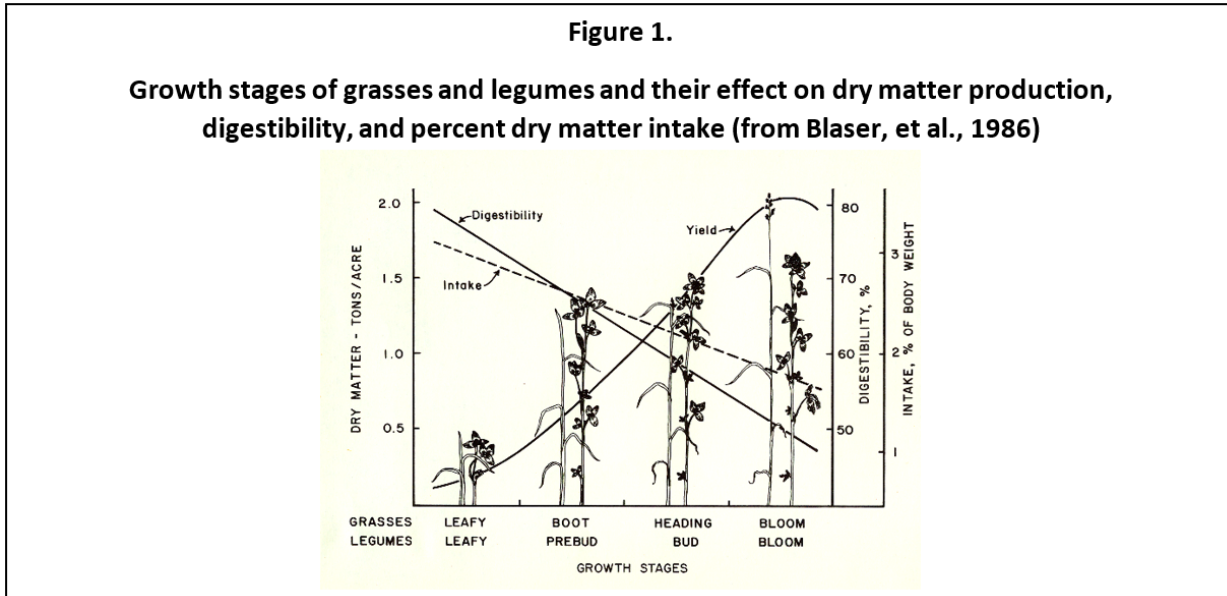


Fig. 2. Hay fields should be mowed from the center outward to allow birds to escape to adjacent habitats.

### General Harvest Specifications

1. Forages will be harvested at a frequency and height that will maintain a desired healthy plant community through its life expectancy (see Tables 1-3).
2. Harvest forages at a maturity that provides the desired quality and quantity for the intended use while maintaining optimum re-growth conditions.
3. Forage will be harvested within the optimum moisture range for the type of storage structure used.
4. For nutrient uptake, use harvesting strategies to maximize uptake of available/targeted nutrients while maintaining an acceptable level of forage quality.
5. After harvest, leave enough leaf area on the plant to allow for plant survival and rapid re-growth. If forages are harvested below recommended minimum cutting height, re-growth is slowed, weeds may increase, productivity may decline, and the stand may die.
6. Allow enough recovery time after harvest to allow the forages to accumulate carbohydrate reserves necessary for re-growth in the plant crown, rhizomes, stolons, or roots.

## Alabama Supplemental Guidance for CSP Enhancement



As forages mature, digestibility and intake decrease. Deciding when to harvest hay is a compromise between quality and yield. The true quality test for hay is animal performance (see Figure 1).

**Table 1. Recommended Stages to Harvest Various Hay Crops**

SPECIES	STAGE TO HARVEST FOR ACCEPTABLE QUALITY & YIELD
Alfalfa	Bud stage for first cutting, one-tenth bloom for second and later cuttings. For spring seedlings, allow the first cutting to reach mid- to full bloom
Tall Fescue, orchardgrass	Boot to early head stage for first cut, afterward at 4 to 6 week intervals, or re-growth is about 10 inches
Red, arrowleaf, or crimson clovers	Early bloom
Small grains	Boot to early head stage
Soybeans	Mid- to full bloom and before bottom leaves begin to fall
Sericea lespedeza	Height of 15 to 18 inches
Annual lespedeza	Early bloom and before bottom leaves begin to fall
Ladino or white clover	Cut at correct stage for companion grass
Bermudagrass	15 to 18 inch height for first cutting, harvest every 4 to 5 weeks or when 15 inches high
Sudangrass, sorghum-sudan hybrids, pearl millet	Height of 30 to 40 inches
Bahiagrass	Height of 12 inches or every 4 – 5 weeks
Johnsongrass	Harvest at heading
Dallisgrass	Boot to bloom

## Alabama Supplemental Guidance for CSP Enhancement

Native grasses (eastern gamagrass, Indiangrass, big bluestem, switchgrass)	Harvest in early boot stage at 45 day intervals
Ryegrass	Boot to early head
Perennial peanut	Bloom, with 4-6 week intervals

**Table 2. Recommended Stages to Harvest Various Silage Crops**

SPECIES	STAGE TO HARVEST FOR ACCEPTABLE QUALITY & YIELD
Corn	Kernels full dent
Grain sorghum	Late milk to late dough, before leaf blades begin to die
Forage sorghum	40 inches or late boot stage
Sudangrass, johnsongrass, pearl millet	40 inches or boot stage, whichever comes first
Small grains, ryegrass	Boot to early heading
Soybeans	Late bloom - seed forming in pods and before lower leaves fall
Alfalfa, red clover	Bud to early bloom
Tall fescue, orchardgrass	Boot to early heading; afterward at 4 to 6 week intervals or when 10 inch of re-growth
Hybrid bermudagrass	15 inches at first harvest; afterward at 4 to 5 week intervals
Legume-grass mixtures	Boot to early heading for grass component

**Table 3. Recommended Stubble Height and Approximate Recovery Period After Hay Harvest**

Species	Recommended Minimum Stubble Height after Harvest (inches)	Approximate Recovery or Rest Period <sup>1</sup> (days)
<b>Grasses</b>		
Bahiagrass	2-3	20-28
Bermudagrass, common	2-3	18-28
Bermudagrass, hybrid	3-5	18-28
Big Bluestem	4	25-40
Dallisgrass	2-4	21-30
Eastern Gamagrass**	8	28-45
Indiangrass	5	28-40
Johnsongrass	6	21-30
Orchardgrass	3-5	20-30
Ryegrass	2-3	14-25
Small Grains	3-4	14-25
Sorghum-sudan hybrids	6-8	21-30

## Alabama Supplemental Guidance for CSP Enhancement

Switchgrass**	8	30-45
Tall Fescue	3-4	21-30
<b>Legumes</b>		
Alfalfa	3	20-25
Clover, arrowleaf or crimson	2-4	14-25
Clover, red	2-3	18-25
Clover, subterranean or white	2-3	18-30
Lespedeza, annual	2-3	20-30
Perennial peanut	4	28-42
Sericea Lespedeza	4-6	18-25

Based on favorable growing conditions for the plant. Longer cycles may be needed during stress periods such as extreme heat, cold, wetness, or drought. Shorter cycles may result during favorable growing conditions.

\*For perennial crops and annual crops that will be harvested by more than one cutting refer to the minimum cutting height in Table 3.

\*\*The last cutting should be early enough to allow for re-growth to build up carbohydrates in the root systems before frost. After frost, the re-growth may be cut for hay or grazed.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) OF APPLIED PRACTICE
- LIST ACRES AND DESCRIPTION OF PRACTICE APPLIED BY FIELD
- PHOTO DOCUMENTATION OF ENHANCEMENT.
- COMPLETE TABLE FOUND ON PAGE 5 WHICH INCLUDES FORAGE TYPE, HARVEST HEIGHT, AND HARVEST DATE, AS WELL AS WILDLIFE SPECIES OF CONCERN.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



CONSERVATION ENHANCEMENT ACTIVITY

E511D\_

CONSERVATION STEWARDSHIP PROGRAM

**Forage harvest management to improve terrestrial habitat for wildlife and invertebrates during critical over-winter periods**

Conservation Practice 511: FORAGE HARVEST MANAGEMENT

APPLICABLE LAND USE: Crop (Perennial) RESOURCE CONCERN

ADDRESSED: Animals

ENHANCEMENT LIFE SPAN: 1 year

**Enhancement Description**

Eliminate or forgo the last fall cutting of hay or haylage to optimize wildlife cover and shelter during critical over-winter periods and lengthen late season bloom period for invertebrates. Allowing late season stand maturity increases stand life and reduces risks of frost and winter damage while providing valuable wildlife habitat and extended bloom periods.

**Criteria**

- Specify the wildlife species of concern on the state-approved NRCS Wildlife Habitat Evaluation Guide (WHEG). The species of concern must be one that is present for at least part of their life cycle in the geographical/physiographic region and benefit from the late season, over-winter standing hay/haylage crop.
- The state's WHEG must specify cover and shelter or continuity habitat requirements for the wildlife species of concern. The total WHEG score after installation of this practice must be 0.5 or greater.
- Eliminate or forgo the last scheduled fall cutting to provide suitable over-winter habitat for desired wildlife species and pollinators.

E511D - Forage harvest management to improve terrestrial habitat for wildlife and invertebrates during critical over-winter periods	April 2021	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

- Eliminate or forgo the last fall harvest to benefit the desired wildlife species by following state guidelines. {State Specify last date hay cutting may occur}
  - Example: Hay cutting in SD will occur no later than September 1 of the given year to allow adequate regrowth before winter dormancy.
- Prior cuttings to the foregone harvest must result in stubble heights that will promote health and vigor of the hayland species (refer to Conservation Practice Standard (CPS) 511). The last cutting of the season must ensure minimum plant heights required by the identified wildlife species. Regrowth and taller stubble heights will reduce winter-kill in cold climates (as applicable) and provide additional wildlife benefits. Refer to Cooperative Extension Service recommendations where available.



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

Participant will:

- Y Prior to implementation, identify typical date of last fall cutting. Provide the forage harvest plan and cutting dates to NRCS for review to confirm it meets the criteria of the enhancement.
- Y Prior to implementation, design the last cutting heights to meet WHEG criteria.
- Y Bales from the last cutting prior to the foregone cutting must be removed from the field for off-field storage to minimize predator impacts.
- Y Prior to implementation, review the map delineating the fields selected for improving wildlife cover and shelter and enrolled in the enhancement.
- Y During implementation, take photographs of the forage stand to verify final cutting was left standing in the field and plant heights meet state wildlife requirements for the identified species. Overwintering stubble heights and regrowth must be maintained during the dormant period to promote wildlife habitat.
- Y During implementation, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- Y During implementation, keep the following documentation for each field:

Field	Forage species	Overwinter height (inches)	Last Harvest Date



# CONSERVATION STEWARDSHIP PROGRAM

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

NRCS will:

- Y As needed, provide technical assistance to meet the criteria of the enhancement.
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard and specifications of Pasture and Hay Planting (Code 512) as it relates to implementing this enhancement.
- Y Prior to implementation, an NRCS biologist or partner wildlife biologist will complete the state-approved NRCS WHEG. Specific species targeted will be notated on the WHEG, and total score after implementation must equal 0.50 or greater.

<b>Wildlife Species of Concern</b>	
<b>Cover &amp; Shelter Requirements</b>	
<b>Planned WHEG Score after implementation</b>	

- Y Prior to implementation, verify a map has been developed delineating the hayfields that will have the enhancement implemented.
- Y Prior to implementation, NRCS will provide technical assistance, as needed to:
  - o Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat. Plan must meet requirements of NRCS Conservation Practice Standard Forage Harvest Management (Code 511).



# CONSERVATION STEWARDSHIP PROGRAM

- Develop specifications detailing the wildlife protection measures, such as selecting time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods.
- Υ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- Υ After implementation, verify the planned forage harvest was completed to specifications developed for the fields delineated.
- Υ After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.
- Υ If changes were made after implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

<b>Wildlife Species of Concern</b>	
<b>Cover &amp; Shelter Requirements</b>	
<b>WHEG Score after Implementation</b>	



**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

Date



**2022 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E511B – Forage harvest management to improve terrestrial habitat for wildlife and invertebrates during critical over-winter periods Conservation**

**Practice 511: Forage Harvest Management**

*BRIEF DESCRIPTION OF ENHANCEMENT:* This enhancement is designed to eliminate or forgo the last fall cutting of hay or haylage to optimize wildlife cover and shelter during critical over-winter periods.

*DETAILED REQUIREMENTS OF ENHANCEMENT:*

This enhancement requires the producer to forego the last cutting of hay of the season. No hay harvest will be allowed after September 1<sup>st</sup> for this enhancement.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) OF APPLIED PRACTICE
- LIST ACRES OF PRACTICE APPLIED BY FIELD
- PHOTO DOCUMENTATION OF ENHANCEMENT.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E511B – Forage harvest management to improve terrestrial habitat for wildlife and invertebrates during critical over-winter periods Conservation**

**Practice 511: Forage Harvest Management**

*BRIEF DESCRIPTION OF ENHANCEMENT:* This enhancement is designed to eliminate or forgo the last fall cutting of hay or haylage to optimize wildlife cover and shelter during critical over-winter periods.

*DETAILED REQUIREMENTS OF ENHANCEMENT:*

This enhancement requires the producer to forego the last cutting of hay of the season. No hay harvest will be allowed after September 1<sup>st</sup> for this enhancement.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) OF APPLIED PRACTICE
- LIST ACRES OF PRACTICE APPLIED BY FIELD
- PHOTO DOCUMENTATION OF ENHANCEMENT.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



## CONSERVATION ENHANCEMENT ACTIVITY

E512A

## CONSERVATION STEWARDSHIP PROGRAM

### Cropland conversion to grass-based agriculture to reduce soil erosion

**CONSERVATION PRACTICE: 512 - Pasture and Hay Planting**

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

**RESOURCE CONCERN: Soil**

**ENHANCEMENT LIFE SPAN: 5 years**

#### Enhancement Description

Conversion of cropped land to grass-based agriculture to reduce soil erosion. Mixtures of perennial grasses, forbs, and legume species are established on cropland where annually-seeded cash crops have been grown.

#### Criteria

- The current NRCS wind and water erosion prediction technologies must be used to document the average annual soil erosion estimates (before and after) to show reduction in soil erosion.
- Establish perennial grassland mixture on cropland. Mixtures shall be selected based on:
  - Minimum of 50% grass species.
  - Must contain at least one legume.
  - Climatic conditions, such as annual precipitation and its distribution, growing season length, temperature extremes and the USDA Plant Hardiness Zone.
  - Soil condition and landscape position attributes such as pH, available water holding capacity, aspect, slope, drainage class, fertility level, salinity, depth, flooding and ponding, and levels of phytotoxic elements that may be present.
  - Resistance to disease and insects common to the site or location.
  - Intended use, level of management, realistic yield estimates, maturity stage, and compatibility with other species.





# CONSERVATION STEWARDSHIP PROGRAM

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

**Additional criteria when livestock are included in the system:**

- Grazing plan must be developed to keep grazing period(s) sufficiently short to allow for plants to recover before re-grazing occurs.
- No more than 20% of the mixture may be alfalfa. Other legumes (especially non-bloating species) may be used in place of or in addition to alfalfa up to a maximum legume percentage of 50%.
- In areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.

**Documentation and Implementation Requirements**

**Participant will:**

- Prior to implementation, select a perennial grassland mixture for establishment. The mixture must contain at least one legume. *If livestock are included in the system, no*



more than 20% of the mixture may be alfalfa. (NRCS will provide technical assistance, as needed.) If livestock are included in the system, in areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.

# CONSERVATION STEWARDSHIP PROGRAM

Species	Species type (grass, legume, forb)

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

Planting Date	
Planting Technique	
Seeding rates	

- If livestock are included in the system, during implementation following establishment, a grazing plan must be developed to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.
- During implementation, keep the following documentation:
  - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
  - If livestock are included in the system, keep documentation and photographs of turn in/turn out grazing records for each field.
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.



## CONSERVATION STEWARDSHIP PROGRAM

### NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, use selected mixture and site information to calculate the before and after soil loss erosion using current NRCS wind and water erosion prediction technologies. **Soil erosion BEFORE \_\_\_\_\_ t/ac/year and AFTER \_\_\_\_\_ t/ac/year**
- Prior to implementation, verify the enhancement is planned for cropland.
- Prior to implementation, verify the selected perennial grassland mixture includes a minimum of 50% grass species. Verify the mixture contains at least one legume. If livestock are included in the system, no more than 20% of the mixture may be alfalfa. If livestock are included in the system, in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
  - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- Prior to implementation, verify the enhancement is planned for cropland.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- If livestock are included in the system, verify during implementation following establishment, that a grazing plan is developed to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.
- After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.



# 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

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** E512A: Cropland conversion to grass-based agriculture to reduce soil erosion

**Conservation Practice:** E512 – Pasture and Hay Planting

**BRIEF DESCRIPTION OF ENHANCEMENT:** This is to reduce soil erosion through conversion of cropped land to grass-based agriculture. Implemented by establishing mixtures of perennial grasses, forbs, and legume species on annual cash cropland.

**Important considerations:**

- Utilize the revised Universal Soil Loss Equation-Revision 2 (RUSLE2) technology to document the average annual soil erosion estimates (before and after) to show reduction in soil erosion. **Soil erosion BEFORE \_\_\_\_\_ t/ac/year and AFTER \_\_\_\_\_ t/ac/year.**
- Select mixtures of perennial grasses, forbs, and legume species based on minimum of 50% grass species. Common perennial grasses adapted to the Alabama include warm-season species such as bahiagrass, bermudagrass, dallisgrass, and cool season species such as tall fescue and orchardgrass. Common perennial warm season legumes such as Rizoma peanut and Sericea Lespedeza and cool season species such as white clover are well adapted to the Southeast. For Alabama’s common perennial grasses and legumes, their stand establishment and management strategies refer to Alabama Forage Basics Handbook at: [Alabama Forage Basics Handbook - Alabama Cooperative Extension System \(aces.edu\)](https://aces.edu/handbook).
- Utilize the USDA Plant Hardiness Zone map in development of perennial grass-based mixture planting specification: [al.jpg \(612×792\) \(usda.gov\)](https://www.usda.gov/aphis/npn/pubs/2015/01/01/01150101.pdf)
- Use Alabama cooperative extensions recommendations for right plant materials, rates, methods, depths, dates, and planting guide for forage grasses ([Alabama Planting Guide for Forage Grasses - Alabama Cooperative Extension System \(aces.edu\)](https://aces.edu/handbook)) and forage legumes ([Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System \(aces.edu\)](https://aces.edu/handbook)).
- Utilize the forage and biomass planting guide sheet No. AL512 for forage crops commonly grown for pasture or hay in Alabama and, the Geographical Areas for Species Adaptation and Seeding Dates. [512\\_AL\\_GD\\_Forage\\_and\\_Biomass\\_Planting-AL512\\_Guide\\_Sheet\\_2015 \(usda.gov\)](https://www.usda.gov/aphis/npn/pubs/2015/01/01/01150101.pdf)
- All seed and planting materials must meet Alabama’s state quality standards. [Seed Laboratory – Alabama Agriculture & Industries](https://aces.edu/handbook)
- Exclude noxious species such as Cogongrass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*) and Kudzu (*Pueraria montana*) from planting. Pests should be managed according to the Pest Management Conservation System (595) Standard.
- Provide protection from equipment, trampling and other destructive factors. Exclude livestock until the plants are well established.
- Apply plant nutrients and/or soil amendments based on current soil test. To take a proper soil sample and testing follow the protocol of the Soil, Forage, and Water Testing Laboratory at Auburn University: [Soil, Forage & Water Testing Lab | Alabama Agricultural Experiment Station \(auburn.edu\)](https://www.auburn.edu/~wbr1000/).
- When livestock are included in the system keep grazing period(s) sufficiently short to allow for plants to recover before re-grazing occurs.

## 2022 Alabama Supplemental Guidance for CSP Enhancement

- For further information on planting guide to grasses and legumes refer to University of Georgia extension at: [C 814\\_6.PDF \(uga.edu\)](#).

### PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS:

- Provide NRCS with the selected mixtures, seeding rates, and time of planting.
- Notify NRCS of any planned changes in mixtures or field operations to verify the planned system meets the enhancement criteria,
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



## CONSERVATION ENHANCEMENT ACTIVITY

E512B

# CONSERVATION STEWARDSHIP PROGRAM

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

**CONSERVATION PRACTICE: 512 - Pasture and Hay Planting**

**APPLICABLE LAND USE: Pasture**

**RESOURCE CONCERN: Soil**

**ENHANCEMENT LIFE SPAN: 5 years**

#### Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide for reduced soil erosion, improving soil health.

#### Criteria

- Select perennial grass or forb and legume plant species or a mix of annual and perennial species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that will provide ground cover and root mass needed to be sufficient to protect the soil from wind and water erosion.
- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.
- Prepare seed bed for planting that does not restrict plant emergence or leave the site vulnerable to erosion.
- Planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.

E512B - Forage and biomass planting to reduce soil erosion or increase organic matter to build soil health	July 2022	Page   1
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# CONSERVATION STEWARDSHIP PROGRAM

- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Deep-rooted, perennial species or deep-rooted perennial and annual species mix will be selected that will contribute to maintaining or increasing underground carbon storage.
- New plantings will be monitored for water stress. Depending on the severity of drought, water stress may require reducing weeds, early harvest of any companion crops, irrigating when possible, or replanting failed stands. Plantings will be protected from grazing until an adequate stand is established and meets the species specific, local standard for beginning grazing.

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation, select a deep-rooted perennial forage species or grassland mixture of deep-rooted perennials and annuals for establishment. *If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. (NRCS will provide technical assistance, as needed.)*

Species	Forage category (grass, legume, forb)

- Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. (NRCS will provide technical assistance, as needed.)

Planting date	
Planting method	
Seeding rate	





# CONSERVATION STEWARDSHIP PROGRAM

- If livestock are included in the system, prior to implementation a grazing plan must be developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs and ensure adequate stubble heights remain to prevent erosion.
- During implementation, keep the following documentation:
  - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - Documentation of seed rate basis (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- If livestock are included in the grazing system, documentation, and photographs of turn in/turn out grazing records and stubble height residue for each field.
- If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- After implementation, make the forage planting and grazing records and photos available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- Prior to implementation, use selected mixture and site information to calculate the before and after soil loss from water erosion using current NRCS wind and water erosion prediction technologies.  
**Soil erosion BEFORE \_\_\_\_\_ t/ac/year and AFTER \_\_\_\_\_ t/ac/year**
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
  - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- If livestock are included in the system, develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs and maintain adequate stubble heights to prevent erosion.



# CONSERVATION STEWARDSHIP PROGRAM

- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the planned grassland mixture was established to specifications developed for the site.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** E512B: Forage and biomass planting to reduce soil erosion or increase organic matter to build soil health

**Conservation Practice:** E512 – Pasture and Hay Planting

**BRIEF DESCRIPTION OF ENHANCEMENT:** This supplement is to reduce soil erosion or increase organic matter to build soil health by establishing adapted and/or compatible diverse species, varieties, or cultivars suitable for pasture, hay, or biomass production.

**Important considerations:**

- Select diversity of plant species that provide ground cover and root mass (root/shoot ratio) needed to protect the soil from erosion based on:
  - Climatic conditions such as annual precipitation and its distribution, growing season length, temperature ([Alabama Weather Averages - Current Results](#)), and the USDA Plant Hardiness Zone. Utilize the USDA Plant Hardiness Zone map in development of perennial grass-based mixture planting specification: [al.jpg \(612×792\) \(usda.gov\)](#)
- Use Alabama cooperative extensions recommendations for right plant materials, rates, methods, depths, dates, and planting guide for forage grasses ([Alabama Planting Guide for Forage Grasses - Alabama Cooperative Extension System \(aces.edu\)](#)) and forage legumes ([Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System \(aces.edu\)](#)).
  - Utilize the forage and biomass planting guide sheet No. AL512 for forage crops commonly grown for pasture or hay in Alabama and, the Geographical Areas for Species Adaptation and Seeding Dates. [512 AL GD Forage and Biomass Planting-AL512 Guide Sheet 2015 \(usda.gov\)](#)
  - All seed and planting materials must meet Alabama's state quality standards. [Seed Laboratory – Alabama Agriculture & Industries](#)
  - Exclude noxious species such as Cogon grass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*) and Kudzu (*Pueraria montana*) from planting. Pests should be managed according to the Pest Management Conservation System (595) Standard.
- Provide protection from equipment, trampling and other destructive factors. Exclude livestock until the plants are well established.
- Apply plant nutrients and/or soil amendments based on current soil test. To take a proper soil sample and testing follow the protocol of the Soil, Forage, and Water Testing Laboratory at Auburn University: [Soil, Forage & Water Testing Lab | Alabama Agricultural Experiment Station \(auburn.edu\)](#).
- Select the species mix that maintain or increase underground carbon storage.
- Prepare seedbed that protect soil from erosion and plant when soil moisture is adequate for plant emergence.
- Provide protection from equipment, trampling and other destructive factors.
- Apply plant nutrients and/or soil amendments based on current soil test.

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- Provide NRCS with the current and a suggested planned pasture and hay planting,
- Notify NRCS of any planned changes in species, varieties, or cultivar of herbaceous species, or field operations to verify the planned system meets the enhancement criteria,

## 2022 Alabama Supplemental Guidance for CSP Enhancement

- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



## CONSERVATION ENHANCEMENT ACTIVITY

E512C

# CONSERVATION STEWARDSHIP PROGRAM

### Cropland conversion to grass for soil organic matter improvement

**CONSERVATION PRACTICE: 512 - Pasture and Hay Planting**

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

**RESOURCE CONCERN: Soil**

**ENHANCEMENT LIFE SPAN: 5 years**

#### Enhancement Description

Conversion of cropped land to grass-based agriculture. Mixtures of perennial grasses, forbs, and/or legume species are established on cropland where annually-seeded cash crops have been grown.

#### Criteria

- The current NRCS wind and water erosion prediction technologies must be used to document the average annual soil erosion estimates and soil conditioning index improvements.
- Establish perennial grassland mixture on cropland. Select deep-rooted perennial species that provide adequate kinds and amount of plant materials needed to increase soil organic matter. Mixtures shall be selected based on:
  - Minimum of 50% grass species.
  - Must contain at least one legume.
  - Climatic conditions, such as annual precipitation and its distribution, growing season length, temperature extremes and the USDA Plant Hardiness Zone.
  - Soil condition and landscape position attributes such as pH, available water holding capacity, aspect, slope, drainage class, fertility level, salinity, depth, flooding and ponding, and levels of phytotoxic elements that may be present.
  - Resistance to disease and insects common to the site or location.
  - Intended use, level of management, realistic yield estimates, maturity stage, and compatibility with other species. Verify plant adaptation to the area prior to planting.



# CONSERVATION STEWARDSHIP PROGRAM

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

**Additional criteria when livestock are included in the system:**

- Grazing plan must be developed to keep grazing period(s) sufficiently short to allow for plants to recover before re-grazing occurs.
- No more than 20% of the mixture may be alfalfa. Other legumes (especially non-bloating species) may be used in place of or in addition to alfalfa up to a maximum legume percentage of 50%.
- In areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.

**Documentation and Implementation Requirements**

**Participant will:**

- Prior to implementation, select a perennial grassland mixture for establishment. Verify the mixture contains at least one legume. *If livestock are included in the system*, no more than 20% of the mixture may be alfalfa. (NRCS will provide technical assistance, as



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

# CONSERVATION STEWARDSHIP PROGRAM

Species	Species type (grass, legume, broadleaf)

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

Planting Date	
Planting Technique	
Seeding rates	

- If livestock are included in the system*, during implementation following establishment, a grazing plan must be developed to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.
- During implementation, keep the following documentation:
  - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
  - If livestock are included in the system*, keep documentation and photographs of turn in/turn out grazing records for each field.
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, use selected mixture and site information to calculate the soil loss and the Soil Condition Index (SCI) values using current NRCS wind and water erosion prediction technologies. **Soil erosion** = \_\_\_\_\_ **t/ac/year** and **SCI value** = \_\_\_\_\_



# CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, verify the enhancement is planned for cropland.
- Prior to implementation, verify the selected perennial grassland mixture includes a minimum of 50% grass species. *If livestock are included in the system*, no more than 20% of the mixture may be alfalfa. *If livestock are included in the system*, in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
  - Preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- Prior to implementation, verify the enhancement is planned for cropland.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- If livestock are included in the system*, verify during implementation following establishment, that a grazing plan is developed to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.
- After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E512C:** Cropland conversion to grass for organic matter improvement

**Conservation Practice:** **E512** – Pasture and Hay Planting

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement is to establish mixtures of perennial grasses, forbs, and legume species on cropland for the purpose of organic matter improvement

### **Important considerations:**

- Utilize the revised Universal Soil Loss Equation-Revision 2 (RUSLE2) technology to document the average annual soil erosion estimates and Soil Conditioning Index (SCI) improvements. **Soil erosion** = \_\_\_\_\_ **t/ac/year** and **SCI** = \_\_\_\_\_
- Use minimum of 50% grass in mixtures of perennial grasses, forbs, and legume species when selecting your plant species. Up to a maximum of 50% non-bloating legume species may be used. Common perennial grasses adapted to the Alabama include warm-season species such as bahiagrass, bermudagrass, dallisgrass, and cool season species such as tall fescue and orchardgrass. Common perennial warm season legumes such as Rizoma peanut and Sericea Lespedeza and cool season species such as white clover are well adapted to the Southeast. For Alabama's common perennial grasses and legumes, their stand establishment and management strategies refer to Alabama Forage Basics Handbook at: [Alabama Forage Basics Handbook - Alabama Cooperative Extension System \(aces.edu\)](http://aces.edu).
- Utilize the USDA Plant Hardiness Zone map in development of perennial grass-based mixture planting specification: [al.jpg \(612×792\) \(usda.gov\)](http://al.jpg)
- Use Alabama cooperative extensions recommendations for right plant materials, rates, methods, depths, dates, and planting guide for forage grasses ([Alabama Planting Guide for Forage Grasses - Alabama Cooperative Extension System \(aces.edu\)](http://aces.edu)) and forage legumes ([Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System \(aces.edu\)](http://aces.edu)).
- Utilize the forage and biomass planting guide sheet No. AL512 for forage crops commonly grown for pasture or hay in Alabama and, the Geographical Areas for Species Adaptation and Seeding Dates. [512 AL GD Forage and Biomass Planting-AL512 Guide Sheet 2015 \(usda.gov\)](http://usda.gov)
- All seed and planting materials must meet Alabama's state quality standards. [Seed Laboratory – Alabama Agriculture & Industries](http://aces.edu)
- Exclude noxious species such as Cogongrass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*) and Kudzu (*Pueraria montana*) from planting. Pests should be managed according to the Pest Management Conservation System (595) Standard.
- Provide protection from equipment, trampling and other destructive factors. Exclude livestock until the plants are well established.
- Apply plant nutrients and/or soil amendments based on current soil test. To take a proper soil sample and testing, follow the protocol of the Soil, Forage, and Water Testing Laboratory at Auburn University: [Soil, Forage & Water Testing Lab | Alabama Agricultural Experiment Station \(auburn.edu\)](http://aces.edu).

## 2022 Alabama Supplemental Guidance for CSP Enhancement

- When livestock are included in the system keep grazing period(s) sufficiently short to allow for plants to recover before re-grazing occurs.
- For further information on planting guide to grasses and legumes refer to University of Georgia extension at: [C 814\\_6.PDF \(uga.edu\)](#).

### PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.

- Provide NRCS with the selected mixtures, seeding rates, and time of planting.
- Notify NRCS of any planned changes in mixtures or field operations to verify the planned system meets the enhancement criteria,
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



## CONSERVATION ENHANCEMENT ACTIVITY

E512D

# CONSERVATION STEWARDSHIP PROGRAM

### Forage plantings that help increase organic matter in depleted soils

**CONSERVATION PRACTICE: 512 - Pasture and Hay Planting**

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

**RESOURCE CONCERN: Soil**

**ENHANCEMENT LIFE SPAN: 5 years**

#### Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can help improve soil quality of depleted sites through increase or conservation of the organic matter in the soil.

#### Criteria

- Select perennial grass or forb and legume plant species or a mix of annual and perennial species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that will provide ground cover and root mass needed to be sufficient to protect the soil from wind and water erosion.
- This enhancement is applicable where soils have been depleted of organic matter (typically from direct exposure to air through plowing or disking, and/or having little or no vegetation growing on the soil for a period. In these circumstances, organic matter can be increased through planting of deep-rooted perennial species or a mix of deep-rooted perennials and annual species with the capability of moving carbon into the soil horizons naturally, and then managing these plant communities for optimum production of above ground matter (forage).
- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.

E512D - Forage plantings that help increase organic matter in depleted soils	July 2022	Page   1
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# CONSERVATION STEWARDSHIP PROGRAM

- Prepare seed bed for planting that does not restrict plant emergence or leave the site vulnerable to erosion.
- Planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test and according to Land Grant University recommendations. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Inspect and calibrate equipment prior to use. Continually monitor during planting to ensure proper rate, distribution and depth of planting is maintained.
- Monitor new plantings for water stress. Depending on the severity of drought, water stress may require reducing weeds, early harvest of any companion crop, irrigating when possible, or replanting failed stands.

## Documentation and Implementation Requirements

### Participant will:

- Prior to implementation, select a deep-rooted perennial forage species or grassland mixture of deep-rooted perennials and annuals for establishment. *If livestock are included in the system*, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. (NRCS will provide technical assistance, as needed.)

Species	Forage category (grass, legume, forb)

- Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. (NRCS will provide technical assistance, as needed.)



# CONSERVATION STEWARDSHIP PROGRAM

Planting date	
Planting method	
Seeding rate	

- If livestock are included in the system*, prior to implementation a grazing plan must be developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs and ensure adequate stubble heights remain to prevent erosion.
- During implementation, keep the following documentation:
  - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - Documentation of seed rate basis (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- If livestock are included in the grazing system*, documentation, and photographs of turn in/turn out grazing records and stubble height residue for each field. *If livestock are included in the grazing system*, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
  - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  - *If livestock are included in the system*, develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs and maintain adequate stubble heights to prevent erosion.



- During implementation, evaluate any planned changes to verify they meets the enhancement criteria.
- After implementation, verify the planned grassland mixture was established to specifications developed for the site.

# CONSERVATION STEWARDSHIP PROGRAM

### NRCS Documentation Review:

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E512D:** Forage plantings that help increase organic matter in depleted soils

**Conservation Practice:** **E512 – Pasture and Hay Planting**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This supplement is to help improve soil quality of depleted of organic matter through planting of deep-rooted perennial species or a mix of deep-rooted perennials and annual species with the capability of increase or conserve organic matter in the soil.

**Important considerations:**

- Establish adapted forage species suitable for pasture, hay, or biomass production that can help improve soil quality of depleted sites through increase or conserve the soil organic matter. Organic matter can be increased through planting of deep-rooted perennial species or a mix of deep-rooted perennials and annual species.
- Grass species such as bahiagrass, bermudagrass, dallisgrass, and cool season species such as tall fescue and orchardgrass are more likely to increase soil organic matter than legumes. Typically, fast-growing crops such as sorghum-sudangrass, rye, sunn hemp are useful when soils are low in organic matter. Common perennial warm season legumes such as Rizoma peanut and Sericea Lespedeza and cool season species such as white clover are well adapted to the Southeast.
- Include native grasses that are well adapted to Alabama's climate and soil conditions such as **big bluestem, Indiangrass, Switchgrass into the system**, and then manage these plant communities for optimum production of above ground matter (forage). For Alabama's common perennial grasses and legumes, their stand establishment and management strategies refer to Alabama Forage Basics Handbook at: [Alabama Forage Basics Handbook - Alabama Cooperative Extension System \(aces.edu\)](http://aces.edu).
- Use Alabama cooperative extensions recommendations for right plant materials, rates, methods, depths, dates, and planting guide for forage grasses ([Alabama Planting Guide for Forage Grasses - Alabama Cooperative Extension System \(aces.edu\)](http://aces.edu)) and forage legumes ([Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System \(aces.edu\)](http://aces.edu)).
- Utilize the forage and biomass planting guide sheet No. AL512 for forage crops commonly grown for pasture or hay in Alabama and, the Geographical Areas for Species Adaptation and Seeding Dates. [512 AL GD Forage and Biomass Planting- AL512 Guide Sheet 2015 \(usda.gov\)](http://usda.gov)
- Exclude noxious species such as Cogongrass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*) and Kudzu (*Pueraria montana*) from planting. Pests should be managed according to the Pest Management Conservation System (595) Standard.
- Apply plant nutrients and/or soil amendments based on current soil test. To take a proper soil sample and testing follow the protocol of the Soil, Forage, and Water Testing Laboratory at Auburn University: [Soil, Forage & Water Testing Lab | Alabama Agricultural Experiment Station \(auburn.edu\)](http://auburn.edu).

PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.

## 2022 Alabama Supplemental Guidance for CSP Enhancement

- Provide NRCS with the selected forage species, seeding rates, and time of planting.
- Notify NRCS of any planned changes in species or mixtures or field operations
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_

CSP Participant Name

\_\_\_\_\_

Date





**CONSERVATION ENHANCEMENT ACTIVITY**

**E512I**

**CONSERVATION STEWARDSHIP PROGRAM**

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

**CONSERVATION PRACTICE: 512 - Pasture and Hay Planting**

**APPLICABLE LAND USE: Pasture; Associated Ag Land; Farmstead**

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 5 years**

**Enhancement Description**

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species that can provide nectar for Monarch butterflies and/or pollinators and forage and other habitat values for wildlife and livestock, particularly at times when targeted nectar, forage supply and quality, cover, and shelter are not available in other pastures.

**Criteria**

- This enhancement is acceptable for use when converting from degraded pastureland sites that require NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) in order to stabilize the site to address a resource concern.
- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, and will meet the nectar needs of specified, pollinating insects (and/or Monarch butterflies) at times when they will be present and foraging. These plants need to also provide forage or other habitat values for wildlife and livestock.
- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.
- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.



# CONSERVATION STEWARDSHIP PROGRAM

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

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation, select a perennial forage species or grassland 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.



# CONSERVATION STEWARDSHIP PROGRAM

- If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.
- During implementation, keep the following documentation:
  - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
  - If livestock are included in the grazing system, documentation, and photographs of turn in/turn out grazing records for each field.
- After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- Prior to implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).  
**Target Pollinator Species:** \_\_\_\_\_  
**WHEG score before implementation:** \_\_\_\_\_  
**WHEG score after implementation:** \_\_\_\_\_
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
  - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  - If livestock are included in the system, develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.



- After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.

# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E512I – Establish Pollinator and/or Beneficial Insect and/or Monarch Habitat**

**Conservation Practice 512: Forage and Biomass Planting**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement will be used to plant mixes which will be excellent pollinator, beneficial insect and/or Monarch butterfly habitat in pastures.

**Some important things to note:**

- Use this enhancement to convert degraded pastureland, odd edges or corners or other suitable areas from pasture grasses to pollinator/beneficial insect habitat.
- **Minimum Required Treatment:** A minimum of one-half acre (1/2 ac) of planting must be completed for every 40 acres of open land in the CSP application. (1.25% of open land acres)
- Acres in this enhancement must be fenced out during the growing season. Grazing is allowed outside of the growing season on a rotational basis. Must have grazing records.
- Select plants from the attached plant list. Three must be planted from each bloom period, with a total of 9 species to be planted. One native warm season grass (bottom of list) may be substituted for one of the mid or late blooming species.
- NO fertilizer or lime will be applied to the site at planting.
- Area should be treated with appropriate herbicides prior to establishment of pollinator habitat if johnson grass, cogon grass or other hard to eradicate species such as bahia, tall fescue or Bermuda are present.
- Maintenance shall be completed on these areas beginning the second winter after establishment. Some form of maintenance must be completed on all acres at least once every 3 years. The best regime is to implement maintenance on 1/3 of the acreage annually. Prescribed burning or winter grazing is the recommended form of maintenance, but mowing high (12 inches) is acceptable. Mowing could allow a duff layer to develop and potentially limit pollinator plant growth and survival. Therefore, if mowing is the main form of maintenance, then either fire or light disking must be used at least once every 3<sup>rd</sup> maintenance cycle to break the duff layer. Light disking means scratching the surface of the soil, but not going deeper than 3 inches at any one point.
- Spot spraying to stop invasives and woody plant encroachment is recommended during the life of the practice but ensure herbicide label directions are followed.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED

## Alabama Supplemental Guidance for CSP Enhancement

- PROVIDE SEED INVOICE SHOWING TYPE AND AMOUNT PURCHASED FOR THIS PRACTICE.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY
- IF LIVESTOCK ARE ALLOWED TO GRAZE (ONLY OUTSIDE THE GROWING SEASON), PROVIDE PHOTOGRAPHS NOTING FENCING AND TURN IN/TURN OUT GRAZING RECORDS FOR EACH FIELD.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date

## **Conservation Security Program**

### **Pollinator Habitat Plant List**

**Choose a Minimum of 9 Forbs (3 Per Flowering Period)**

#### **Early Flowering Species (Choose 3)**

Smooth Beardtongue ( <i>Penstemon digitalis</i> )	$\frac{3}{16}$ pound pls* per acre
Butterfly Weed** ( <i>Asclepias tuberosa</i> )	$\frac{1}{4}$ pound pls per acre
Lanceleaf Tickseed** ( <i>Coreopsis lanceolata</i> )	$\frac{1}{2}$ pound pls per acre
Blue False Indigo ( <i>Baptisia australis</i> )	1 pound pls per acre
Common Milkweed** ( <i>Asclepias syriaca</i> )	$\frac{1}{4}$ pound pls per acre
Plains Coreopsis** ( <i>Coreopsis tinctoria</i> )	$\frac{3}{16}$ pound pls per acre
Purple Prairie Clover ( <i>Dalea purpurea</i> )	$\frac{3}{16}$ pound pls per acre
Pale Purple Coneflower ( <i>Echinacea pallida</i> )	$\frac{1}{4}$ pound pls per acre
Spotted Beebalm ( <i>Monarda punctata</i> )	$\frac{1}{8}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Black-Eyed Susan\*\* (*Rudbeckia hirta*)  $\frac{1}{4}$  pound pls per acre

Golden Alexander\*\* (*Zizia aurea*)  $\frac{1}{4}$  pound pls per acre

### **Mid-Season Flowering Species (Choose 3)**

Large Flower Partridge Pea (*Chamaecrista fasciculata*)  $\frac{1}{4}$  pound pls per acre

Small Flower Partridge Pea (*Chamaecrista nictitans*)  $\frac{1}{4}$  pound pls per acre

Slender Mountain Mint\*\* (*Pycnanthemum tenuifolium*)  $\frac{1}{8}$  pound pls per acre

Illinois Bundleflower (*Desmanthus illinoensis*)  $\frac{1}{2}$  pound pls per acre

Purple Coneflower (*Echinacea purpurea*)  $\frac{1}{2}$  pound pls per acre

Blue Verbena\*\* (*Verbena hastata*)  $\frac{5}{16}$  pound pls per acre

Yellow Giant Hyssop (*Agastache nepetoides*)  $\frac{1}{4}$  pound pls per acre

Golden Wave Tickseed\*\* (*Coreopsis basalis*)  $\frac{1}{8}$  pound pls per acre

Rattlesnake Master (*Eryngium yuccifolium*)  $\frac{3}{8}$  pound pls per acre

White Prairie Clover (*Dalea candida*)  $\frac{1}{4}$  pound pls per acre

Boneset (*Eupatorium perfoliatum*)  $\frac{1}{8}$  pound pls per acre

Roundleaf Thoroughwort (*Eupatorium rotundifolium*)  $\frac{1}{8}$  pound pls per acre



## Alabama Supplemental Guidance for CSP Enhancement

Lance-Leaved Goldenrod ( <i>Euthamia graminifolia</i> )	$\frac{1}{16}$ pound pls per acre
Rosemallow ( <i>Hibiscus moscheutos</i> )	$\frac{1}{4}$ pound pls per acre
Violet Lespedeza ( <i>Lespedeza violacea</i> )	$\frac{1}{4}$ pound pls per acre
Spiked Blazing Star ( <i>Liatris spicata</i> )	$\frac{1}{4}$ pound pls per acre
Lupine ( <i>Lupinus perennis</i> )	$\frac{5}{8}$ pound pls per acre
Bergamot** ( <i>Monarda fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Mexican Hat ( <i>Ratibida coumnraris</i> )	$\frac{1}{8}$ pound pls per acre
Greyheaded Coneflower** ( <i>Ratibida pinnata</i> )	$\frac{1}{4}$ pound pls per acre
Clasping Coneflower ( <i>Rudbeckia amplexicaulis</i> )	$\frac{1}{4}$ pound pls per acre
Passion Flower ( <i>Passiflora incarnate</i> )	$\frac{1}{2}$ pound pls per acre
Wild Quinine ( <i>Parthenium integrifolium</i> )	$\frac{3}{16}$ pound pls per acre

### **Late Flowering Species (Choose 3)**

Joe-Pye Weed ( <i>Eupatorium fistulosum</i> )	$\frac{1}{8}$ pound pls per acre
Sweet Joe-Pye Weed ( <i>Eupatorium purpureum</i> )	$\frac{1}{8}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Swamp Sunflower** ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre
Maximilian Sunflower** ( <i>Helianthus angustifolius</i> )	$\frac{3}{16}$ pound pls per acre
Cardinal Flower ( <i>Lobelia cardinalis</i> )	$\frac{1}{8}$ pound pls per acre
Butterfly pea ( <i>Centrosema virginianum</i> )	$\frac{1}{8}$ pound pls per acre
Heath Aster** ( <i>Aster pillosus/Symphyotrichum pilosum</i> )	$\frac{1}{8}$ pound pls per acre
Wand Goldenrod** ( <i>Solidago stricta</i> )	$\frac{1}{8}$ pound pls per acre
Pine Barren Goldenrod** ( <i>Solidago fistulosa</i> )	$\frac{1}{8}$ pound pls per acre
Tall Goldenrod** ( <i>Solidago altissima</i> )	$\frac{1}{8}$ pound pls per acre
Gray Goldenrod** ( <i>Solidago nemoralis</i> )	$\frac{1}{8}$ pound pls per acre
Rough Goldenrod** ( <i>Solidago rugosa</i> )	$\frac{1}{8}$ pound pls per acre
Swamp Milkweed** ( <i>Asclepias incarnata</i> )	$\frac{3}{8}$ pound pls per acre
Smooth Aster** ( <i>Aster laevis</i> )	$\frac{1}{8}$ pound pls per acre
Showy Tickseed ( <i>Bidens aristosa</i> )	$\frac{3}{8}$ pound pls per acre
Tall Tickseed** ( <i>Coreopsis tripteris</i> )	$\frac{1}{8}$ pound pls per acre
Florida Beggarweed ( <i>Desmodium floridanum</i> )	$\frac{5}{16}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Dixie Tick Trefoil ( <i>Desmodium tortuosum</i> )	$\frac{5}{16}$ pound pls per acre
Perplexed Tick Trefoil ( <i>Desmodium perplexum</i> )	$\frac{5}{16}$ pound pls per acre
Pine Barren Tick Trefoil ( <i>Desmodium strictum</i> )	$\frac{5}{16}$ pound pls per acre
Indian Blanket** ( <i>Gaillardia pulchella</i> )	$\frac{3}{8}$ pound pls per acre
Sneezeweed ( <i>Helenium autumnale</i> )	$\frac{1}{8}$ pound pls per acre
Evening Primrose ( <i>Oenothera biennis</i> )	$\frac{1}{8}$ pound pls per acre
Yellow Wingstem ( <i>Verbesina alternifolia</i> )	$\frac{5}{16}$ pound pls per acre
White Wingstem ( <i>Verbesina virginica</i> )	$\frac{5}{16}$ pound pls per acre
Iron Weed ( <i>Vernonia altissima</i> )	$\frac{3}{16}$ pound pls per acre
Alabama Iron Weed ( <i>Vernonia noveboracensis</i> )	$\frac{3}{16}$ pound pls per acre

### **Native Warm Season Grasses**

Big Bluestem ( <i>Andropogon gerardii</i> )	$\frac{1}{2}$ pound pls per acre
Purple Top ( <i>Tridens flavus</i> )	$\frac{1}{2}$ pound pls per acre
Yellow Indiangrass ( <i>Sorghastrum nutans</i> )	$\frac{1}{2}$ pound pls per acre

## Alabama Supplemental Guidance for CSP Enhancement

Switchgrass (*Panicum virgatum*)

½ pound pls per acre

\*PLS = Pure Live Seed ( $\% \text{ purity} \times \% \text{ germination} = \% \text{ pure live seed}$ )

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example **PLS** =  $.90 \times .70 = \mathbf{63 \text{ percent}}$

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

\*\* Denotes plants that make good habitat for beneficial insects. Favor planting those species if targeting beneficial insects.

Note: If targeting Monarch butterflies, plant at least one of the milkweed species (*Asclepias*)



## CONSERVATION ENHANCEMENT ACTIVITY

E512J

## CONSERVATION STEWARDSHIP PROGRAM

### Establish wildlife corridors to provide habitat continuity or access to water

**CONSERVATION PRACTICE: 512 - Pasture and Hay Planting**

**APPLICABLE LAND USE: Pasture; Associated Ag Land; Farmstead**

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 5 years**

#### Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that can provide cover needed for wildlife species of concern to move from food/cover/water sources to other food/cover/water sources as needed for their life cycles, and/or to enhance the utility of underused wildlife habitat areas.

#### Criteria

- Select native, perennial, grass/forb/legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that meet the cover demand for movement by the wildlife species of concern.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.
- Seeding medium that does not restrict plant emergence will be provided, and planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre- inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.

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# CONSERVATION STEWARDSHIP PROGRAM

- Plant selection will be made and maintained based on the state's approved NRCS habitat evaluation procedure.
- Protection from grazing or other plant defoliation/biomass loss will be provided as needed to assure adequate corridor cover during the primary wildlife movement time frames.
- Grazing or other plant defoliation/biomass operations will be timed as needed to assure adequate corridor cover during the primary wildlife movement time frames.
- Wildlife species of concern for corridor utilization will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation, select a perennial forage species or grassland mixture for establishment. If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. (NRCS will provide technical assistance, as needed.)

Species	Species type (grass, legume, forb)

- Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting method	
Seeding rate	



# CONSERVATION STEWARDSHIP PROGRAM

- If livestock are included in the system, prior to implementation a grazing plan must be developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- If livestock are included in the grazing system, in areas where animals congregate, establish persistent species than can tolerate close grazing and trampling.
- During implementation, keep the following documentation:
  - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
  - If livestock are included in the grazing system, documentation, and photographs of turn in/turn out grazing records for each field.
- During implementation, ensure that the forage/biomass is protected from grazing or other plant defoliation/biomass loss.
- After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512) as it relates to implementing this enhancement.
- Prior to implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

**Species of concern:** \_\_\_\_\_

**WHEG score before implementation:** \_\_\_\_\_

**WHEG score after implementation:** \_\_\_\_\_

- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (512).
  - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.



# CONSERVATION STEWARDSHIP PROGRAM

- *If livestock are included in the system*, develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- During implementation, evaluate any planned changes to verify they meets the enhancement criteria.
- After implementation, verify the planned perennial grassland mixture was established to specifications developed for the site.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E512J:** Establish wildlife corridors to provide habitat continuity or access to water

### **Conservation Practice: E512 – Pasture and Hay Planting**

**BRIEF DESCRIPTION OF ENHANCEMENT:** Wildlife corridors are defined as narrow strips of land that differs, usually in terms of dominant vegetation, from the surrounding area. They serve as traveling avenues for wildlife species between two similar yet fragmented habitat areas and provide habitat continuity and important sources of food and cover for many species. This enhancement is to establish compatible native plant species, varieties, or cultivars of perennial, herbaceous species that can provide cover needed for wildlife species and to enhance the utility of underused wildlife habitat areas.

### **Important considerations:**

- Corridors can be developed in a variety of ways including natural revegetation, establishment of tree, shrub, and/or herbaceous cover. The main purpose in establishing a corridor is to connect two areas of habitat while also providing a variety of food and shelter, and access to water. Select and establish native, perennial, species such as eastern gamagrass, switchgrass, big bluestem, little bluestem, Indiangrass or establish cool season perennial grasses that grow actively from early spring to early summer. Includes forb/legume plant species and their cultivars that provide habitat continuity.
- The habitat types being connected may include grasslands, wetlands, woods or old fields. A minimum corridor width of 50 feet and a maximum width of 200 feet will provide adequate habitat for species using corridors as a travel lane or for food, nesting or escape cover. Widths of less than 50 feet may encourage nesting activity while not providing enough cover to prevent predators from easily destroying those nests.
- Wildlife species such as deer, fox, raccoon, turtles, and reptiles will use corridors to travel between larger habitat areas. Species using corridors and field buffers to forage and nest in include quail, cottontails, turkeys, songbirds, and insects.
- Use Alabama cooperative extensions recommendations for right plant materials, rates, methods, depths, dates, and planting guide for forage grasses ([Alabama Planting Guide for Forage Grasses - Alabama Cooperative Extension System \(aces.edu\)](https://aces.edu)) and forage legumes ([Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System \(aces.edu\)](https://aces.edu)).
- Utilize the forage and biomass planting guide sheet No. AL512 for forage crops commonly grown for pasture or hay in Alabama and, the Geographical Areas for Species Adaptation and Seeding Dates. [512\\_AL\\_GD\\_Forage\\_and\\_Biomass\\_Planting-AL512\\_Guide\\_Sheet\\_2015 \(usda.gov\)](https://www.usda.gov)
- Exclude noxious species such as Cogongrass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*) and Kudzu (*Pueraria montana*) from planting. Pests should be managed according to the Pest Management Conservation System (595) Standard.
- Apply plant nutrients and/or soil amendments based on current soil test. To take a proper soil sample and testing follow the protocol of the Soil, Forage, and Water Testing Laboratory at Auburn University: [Soil, Forage & Water Testing Lab | Alabama Agricultural Experiment Station \(auburn.edu\)](https://www.auburn.edu).

## 2022 Alabama Supplemental Guidance for CSP Enhancement

- Make sure wildlife species of concern for corridor utilization are specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

### PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.

- Provide NRCS with the selected forage species, seed tags, seeding rates and dates.
- Notify NRCS of any planned changes in species or mixtures or field operations.
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



## CONSERVATION ENHANCEMENT ACTIVITY

E512K

# CONSERVATION STEWARDSHIP PROGRAM

### Establishing native species into forage base to improve diversity for both livestock and wildlife

**CONSERVATION PRACTICE: 512 - Pasture and Hay Planting**

**APPLICABLE LAND USE: Pasture; Associated Ag Land**

**RESOURCE CONCERN: Animals, Plants**

**ENHANCEMENT LIFE SPAN: 5 years**

#### Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous native species into pastures 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/ forbs/ legume plant species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that benefit wildlife species of concern. If native forbs/legumes are not available, use introduced species that provide the same wildlife benefit.
- Plants will be selected that help meet livestock forage demand during times that normal farm/ranch forage production is inadequate while improving habitat for wildlife species of concern.
- Planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.

E512K - Establishing native species into forage base to improve diversity for both livestock and wildlife	April 2022	Page   1
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# CONSERVATION STEWARDSHIP PROGRAM

- 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.
- 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.

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation, select a perennial forage species or grassland mixture for establishment that benefits both livestock and wildlife.

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.) Inter-seeding should not disturb critical life stages of wildlife species of concern.

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.



## CONSERVATION STEWARDSHIP PROGRAM

- 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 Pasture and Hay 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:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Pasture and Hay 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.
- After implementation, make the forage planting and grazing records available for review by NRCS 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

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E512K:** Establishing native species into forage base to improve diversity for both livestock and wildlife

**Conservation Practice: E512 – Pasture and Hay Planting**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This is to establish native plant species that include grasses/forbs/legumes to improve diversity for livestock and wildlife. Native plants support wildlife by providing valuable habitat and food. They provide cover for a variety of wildlife including quail, turkey, and rabbits.

**Important considerations:**

- Establish Alabama’s native warm season grass species such as eastern gamagrass, switchgrass, big bluestem, little bluestem and Indiangrass. Establish cool season perennial grasses that grow actively from early spring to early summer and then again in early fall when temperatures are cooler.
- Exclude livestock until plants are well established.
- Use Alabama cooperative extensions recommendations for right plant materials, rates, methods, depths, dates, and planting guide for forage grasses ([Alabama Planting Guide for Forage Grasses - Alabama Cooperative Extension System \(aces.edu\)](#)) and forage legumes ([Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System \(aces.edu\)](#)).
- Utilize the forage and biomass planting guide sheet No. AL512 for forage crops commonly grown for pasture or hay in Alabama and, the Geographical Areas for Species Adaptation and Seeding Dates. [512\\_AL\\_GD\\_Forage\\_and\\_Biomass\\_Planting-AL512\\_Guide\\_Sheet\\_2015 \(usda.gov\)](#)
- Exclude noxious species such as Cogongrass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*) and Kudzu (*Pueraria montana*) from planting. Pests should be managed according to the Pest Management Conservation System (595) Standard.
- Apply plant nutrients and/or soil amendments based on current soil test. To take a proper soil sample and testing follow the protocol of the Soil, Forage, and Water Testing Laboratory at Auburn University: [Soil, Forage & Water Testing Lab | Alabama Agricultural Experiment Station \(auburn.edu\)](#).

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- Provide NRCS with the selected forage species, seed tags, seeding rates and dates.
- Notify NRCS of any planned changes in species or mixtures or field operations.
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



E512L

# CONSERVATION STEWARDSHIP PROGRAM

## Diversifying forage base with interseeding forbs and legumes to increase pasture quality

Conservation Practice 512 (L): Pasture and Hay Planting

APPLICABLE LAND USE: Pasture, Associated Ag Land

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 5 years

### Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of perennial, herbaceous species that increases the diversity to enhance livestock, forage supply and quality, not available in other pastures.

### Criteria

- Select perennial, forbs and legume plant species and their cultivars based on compatibility with established forage species, climatic conditions, soil condition, landscape position and resistance to disease and insects.
- Recommendations for planting rates, methods, depths, and dates from land grant universities (LGU), plant materials program, extension agencies, or agency field trials will be followed.
- Utilize seed and planting materials that will meet State quality standards.
- Inter-seeding method will not restrict plant emergence or leave the site vulnerable to erosion.
- When planting legumes, use pre-inoculated seed, inoculum coated seed, or inoculate with the proper viable strain of rhizobia immediately before planting.

E512L – Diversifying forage base with interseeding forbs and legumes to increase pasture quality	April 2021	Page   1
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### E512L

## CONSERVATION STEWARDSHIP PROGRAM

- Select plants that will help meet livestock forage demand during times that normal forage production is not adequate.
- Use forage species that will meet the desired level of nutrition (quantity and quality) for the kind and class of livestock to be grazed or fed.
- Select species mixtures with similar palatability to avoid selective grazing.
- Select species with low or not toxic effects on grazing livestock. If two species for consideration provide similar forage quality, with one providing added benefit to wildlife and pollinator species, the wildlife beneficial species should be selected.
- In areas where animals congregate, consider establishing persistent species that can tolerate close grazing and trampling.
- Refer to NRCS Conservation Practice Standard (CPS) Nutrient Management (Code 590) for details for managing nutrients.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.

#### Documentation and Implementation Requirements

Participant will:

- Prior to implementation, select a perennial forb and/or legume mixture for establishment. *If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed.* (NRCS will provide technical assistance, as needed.)

Species	Species type (grass, legume, broadleaf)

- Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
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### E512L

## CONSERVATION STEWARDSHIP PROGRAM

Planting Technique	
Seeding rates	

- *Prior to implementation when livestock are included in the system, modify the grazing plan that maintains grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.*
- *Prior to implementation, a current (within 3 years of the proposed planting date) soil sample analysis is required when soil amendments will be added.*
- *During implementation, exclude livestock until the overseeded species are well established and have reached the full start grazing heights or recommended cutting heights before the first grazing or cutting begins. Refer to Conservation Practice Standards (CPS) 511 Forage Harvest Management and (CPS) 528 Prescribed Grazing for more information.*
- *During implementation, keep the following documentation:*
  - *Records, seed tags and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.*
  - *Documentation of seed rate basis (Pure Live Seed) and any fertilizer or soil amendments and rates used for the implementation of the enhancement.*
- *During implementation where livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records for each field are required.*
- *As needed, provide technical assistance to meet the criteria of the enhancement.*
- *Prior to implementation, provide and explain NRCS Conservation Practice Standard Pasture and Hay Planting (Code 512) and all supporting implementation requirements and specifications as it relates to implementing this enhancement.*
- *Prior to implementation where livestock are included in the system, modify the grazing*

E512L – Diversifying forage base with interseeding forbs and legumes to increase pasture quality	April 2021	Page   3
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E512L

# CONSERVATION STEWARDSHIP PROGRAM

*plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs and maintain sufficient height to protect from soil erosion.*

- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Pasture and Hay Planting (512).
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the planned perennial forbs/ legumes or mixture was established to specifications developed for the site.

**NRCS Documentation Review:**

E512L – Diversifying forage base with interseeding forbs and legumes to increase pasture quality	April 2021	Page   4



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

# CONSERVATION STEWARDSHIP PROGRAM

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

\_\_\_\_\_

Date



## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE: E512L: Diversifying forage base with inter-seeding forbs and legumes to increase pasture quality**

**Conservation Practice: E512 – Pasture and Hay Planting**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement is to diversify forage base with inter-seeding forbs and legumes into existing pasture grass stands to increase pasture quality. This enhancement is not applicable where clover is already present in pastures.

**Important considerations:**

- Plant legume such as white clover or chicory, a forb, into existing pasture. Existing grass should be mowed or grazed close prior to planting. Perennial white clover–like Ladino and Durana, is almost always considered a desirable forage species in grazing pastures.
- Use Alabama cooperative extensions recommendations for right plant materials, rates, methods, depths, dates, and planting guide for forage legumes ([Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System \(aces.edu\)](#)).
- Utilize the forage and biomass planting guide sheet No. AL512 for forage crops commonly grown for pasture or hay in Alabama and, the Geographical Areas for Species Adaptation and Seeding Dates. [512 AL GD Forage and Biomass Planting-AL512 Guide Sheet 2015 \(usda.gov\)](#)
- Control weed before and immediately after planting. Control broadleaf weeds before sowing clover or chicory. Annual broadleaf weeds–like henbit, certain buttercups, chickweed, and geranium–may be controlled with herbicide ([Cool-Season Weed Management Considerations - Alabama Cooperative Extension System \(aces.edu\)](#)). Pests should be managed according to the Pest Management Conservation System (595) Standard.
- Apply plant nutrients and/or soil amendments based on current soil test. To take a proper soil sample and testing follow the protocol of the Soil, Forage, and Water Testing Laboratory at Auburn University: [Soil, Forage & Water Testing Lab | Alabama Agricultural Experiment Station \(auburn.edu\)](#).

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- Provide NRCS with the selected forbs and legumes, seeding rates and dates.
- Notify NRCS of any planned changes in species or mixtures or field operations.
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



## CONSERVATION ENHANCEMENT ACTIVITY

E512M

## CONSERVATION STEWARDSHIP PROGRAM

### Forage plantings that improve wildlife habitat cover and shelter or structure and composition

**CONSERVATION PRACTICE: 512 - Pasture and Hay Planting**

**APPLICABLE LAND USE: Pasture; Associated Ag Land**

**RESOURCE CONCERN: Plants, Animals**

**ENHANCEMENT LIFE SPAN: 5 years**

#### Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can provide cover and shelter or structure and composition for wildlife.

#### Criteria

- Wildlife species of concern for cover and shelter will be specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) and will be a species that would be present for at least part of their life cycle in the geographical/physiographic region.
- The state's WHEG will be completed by an NRCS or partner wildlife biologist. Cover and shelter habitat requirements for the wildlife species of concern will be specified on the WHEG. The total WHEG score after installation of this practice will be 0.60 or greater.
- Select native, perennial, grass/forb/legume plant species (all species must be native) and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, which meet the cover and shelter needs for wildlife species of concern when they will be present.

E512M - Forage plantings that improve wildlife habitat cover and shelter or structure and composition	July 2022	Page   1
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# CONSERVATION STEWARDSHIP PROGRAM

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

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation, select a perennial species or grassland mixture for establishment. (NRCS will provide technical assistance, as needed.)

Species	Forage category (grass, legume, forb)

- Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. (NRCS will provide technical assistance, as needed.)

Planting Date	
Planting method	
Seeding rate	



# CONSERVATION STEWARDSHIP PROGRAM

- If livestock are included in the grazing system*, prior to implementation a grazing plan must be developed to keep grazing periods sufficiently short to allow for plants to recover before re-grazing occurs.
- During implementation, keep the following documentation:
  - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
  - Documentation of seed (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
  - If livestock are included in the grazing system*, documentation, and photographs of turn in/turn out grazing records for each field.
- After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- Prior to implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).  
**Targeted Species:** \_\_\_\_\_  
**WHEG score before implementation:** \_\_\_\_\_  
**WHEG score after implementation:** \_\_\_\_\_
- As needed, prior to implementation, NRCS will provide technical assistance:
  - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
  - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  - If livestock are included in the system*, develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs.
- During implementation, evaluate any planned changes to verify they meets the enhancement criteria.
- After implementation, verify the grassland mixture was established to specifications developed for the site.





**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE: E512M:** Forage plantings that improve wildlife habitat cover and shelter or structure and composition

**Conservation Practice: E512 – Pasture and Hay Planting**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This is to establish compatible suitable species for pasture, hay, or biomass production that can provide cover and shelter or structure and composition for wildlife.

**Important considerations:**

- Make sure wildlife species of concern and cover and shelter habitat requirements are specified on the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). The total WHEG score after installation expected to be 0.60 or greater.
- Select and establish site specific native species such as eastern gamagrass, switchgrass, big bluestem, little bluestem, Indiangrass or cool season perennial grasses or forb/legume plant species and their cultivars that can provide cover and shelter or structure and composition for wildlife.
- Use Alabama cooperative extensions recommendations for right plant materials, rates, methods, depths, dates, and planting guide for forage grasses ([Alabama Planting Guide for Forage Grasses - Alabama Cooperative Extension System \(aces.edu\)](#)) and forage legumes ([Alabama Planting Guide for Forage Legumes - Alabama Cooperative Extension System \(aces.edu\)](#)).
- Utilize the forage and biomass planting guide sheet No. AL512 for forage crops commonly grown for pasture or hay in Alabama and, the Geographical Areas for Species Adaptation and Seeding Dates. [512\\_AL\\_GD\\_Forage\\_and\\_Biomass\\_Planting-AL512\\_Guide\\_Sheet\\_2015 \(usda.gov\)](#)
- Exclude noxious species such as Cogongrass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinense*) and Kudzu (*Pueraria montana*) from planting. Pests should be managed according to the Pest Management Conservation System (595) Standard.
- Apply plant nutrients and/or soil amendments based on current soil test. [Soil, Forage & Water Testing Lab | Alabama Agricultural Experiment Station \(auburn.edu\)](#).

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- Provide NRCS with the selected forage species, seed tags, seeding rates and dates.
- Notify NRCS of any planned changes in species or mixtures or field operations.
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



## 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.



## CONSERVATION STEWARDSHIP PROGRAM

- Plan grazing and/or browsing to match forage quantity and quality goals of the producer within the capability of the resource to respond to management. Plan the intensity, frequency, timing, and/or browsing to reduce animal stress and mortality from toxic and poisonous plants.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- The 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.

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation, make initial target livestock performance goals and mediation actions taken available to NRCS; including reasons for no action.
- Prior to implementation, obtain a written plan for collecting samples, sample analysis, and corresponding management recommendations as developed and provided by a Certified Range Management Consultant, Certified Professional in Range Management, Certified Forage and Grassland Professional, NRCS Technical Service Provider certified for development of a DIA 159, or a non-affiliated consultant with a bachelor or higher level degree in forage agronomy, range science, animal science, animal nutrition or other closely-related plant science discipline or a minimum of three years' experience in grazing lands conservation planning and grazing animal nutrition.
- During implementation, keep records to annually document prescribed grazing requirements are met.
- After implementation, make available documentation of protein and energy of consumed forages/browse based on a land grant university laboratory analysis. 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.

# CONSERVATION STEWARDSHIP PROGRAM

**NRCS will:**

- Prior to implementation, assist the participant with development of a grazing plan if requested to do so.
- During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.
- After implementation, review forage or fecal sampling schedule and corresponding management actions taken to determine if a supplementation plan was reasonably followed.
- After implementation, annually review documentation provided indicating that prescribed grazing specifications have been met and to verify the enhancement has been implemented.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE: E528A: Maintaining quantity and quality of forage for animal health and productivity**

**Conservation Practice: E528 – Prescribed Grazing**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement is designed to manage the harvest of vegetation with grazing and/or browsing animals for the purposes of maintaining quantity and quality of forage for animal health and productivity. This practice applies to pasture, range, and associated Ag land to address the resource concern-Animal.

**Important considerations:**

- 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. Balance average annual livestock dry matter needs with available forage.
- Rotate livestock between at least 3 pastures in a particular functional group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. Make sure movements of livestock and removal herbage is in accordance with site production limitations, rate of plant growth the physiological needs of forage plants and the nutritional needs of the animals. Follow the Pasture and Grazing Management Guide of Alabama Cooperative Extension System [ANR-2731-Pasture-and-Grazing-Mngmt-Guide\\_032321L-A.pdf \(aces.edu\)](https://www.aces.edu/publications/ANR-2731-Pasture-and-Grazing-Mngmt-Guide_032321L-A.pdf). It is anticipated that with a three-pasture rotation that each pasture would rest about 66 percent of the grazing cycle.
- At least one forage sample to be taken quarterly representing the dominant forage being grazed at the time and analyzed for dry matter, neutral detergent fiber, acid detergent fiber, crude protein, total digestible nutrients (TDN), and relative forage quality (RFQ). At least one hay sample to be taken during the winter-feeding period. Refer to Alabama Extension to interpret a forage analysis at [ANR-2466.pdf \(aces.edu\)](https://www.aces.edu/publications/ANR-2466.pdf).
- Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table) and utilize the Alabama extension record keeping basics at: [ANR-2488.pdf \(aces.edu\)](https://www.aces.edu/publications/ANR-2488.pdf).

**Grazing Management Records**

Pasture ID		Pasture acres		Forage type	
Soil test date		Lime/Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	
Type	Number				

## 2022 Alabama Supplemental Guidance for CSP Enhancement

- Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.
- Shelter in the form of windbreaks, sheds, shade structures, and other protective features will be used where conditions warrant to protect livestock from severe weather, intense heat/humidity, and predators.

### PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.

- Provide NRCS with the selected forbs and legumes, seeding rates and dates.
- Notify NRCS of any planned changes in species or mixtures or field operations.
- Provide maps of the area or location(s), digital images/photos (pre-and post activity) of the area and indicate area on map, and dates of completed activity.
- Map of structural improvements (for example, fences and livestock water)
- A written prescribed grazing plan, grazing records, monitoring plan and data that meet Alabama NRCS Prescribed Grazing (528) Standards and Specifications.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E528B**

**CONSERVATION STEWARDSHIP PROGRAM**

**Grazing management that improves Monarch butterfly habitat**

**Conservation Practice 528: Prescribed Grazing**

**APPLICABLE LAND USE: Range, Pasture, Forest**

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 1 year**

**Enhancement Description**

Implement a grazing management plan that will increase the abundance and diversity of monarch nectar-producing perennial forbs, including milkweed, while maintaining ecosystem benefits for other wildlife and livestock.

**Criteria**

- Evaluate habitat in the enhanced, delineated Monarch areas with the state NRCS Monarch Butterfly Wildlife Habitat Evaluation Guide (WHEG) and manage delineated Monarch areas to improve the WHEG score at least one category (e.g. from poor to fair, or from good to excellent).
- Enhance diversity of rangeland plants to optimize delivery of nutrients to domestic grazing animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by a planning process that includes:
  - Clear objectives,
  - A resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
  - Grazing plan,

E528B - Grazing management that improves Monarch butterfly habitat	July 2020	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

- A contingency plan, and
- Monitoring and needed adjustments for Monarchs, domestic grazing animals, and other wildlife (including pollinators).
- Defer, rest, or graze the enhanced, delineated Monarch areas to meet the nectar-producing forbs, including milkweed, needs of Monarch Butterflies when the Monarchs will be migrating through the area (e.g. spring and fall for the southern Great Plains, summer and fall for the Midwest, northern Great Plains and east, and spring through fall for the west.
- Delineate Monarch area(s) within the planned enhancement area/acres, comprising at least 5 acres or at least 5% of the planned enhancement area/acres, whichever is most.
- A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand by livestock and wildlife will be followed.
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.



## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

- Y Prior to implementation, develop a map delineating the areas where the Monarch habitat will be implemented.
- Y Prior to implementation, obtain a written grazing plan (NRCS can provide assistance as needed). Plan must include:
  - o Clear goals and objectives of the plan, including identification of the specie(s) of concern and the plant functional groups providing structure and composition.
  - o Map identifying all permanent pastures, water sources, and any riparian area or watershed drainage locations improved or maintained by this management.
  - o Forage inventory
  - o Forage-animal balance sheet
  - o A grazing plan narrative describing the basis for when livestock movement or rotation will occur, including deferment plans.
  - o Contingency plans for forage shortfalls and for events that trigger adverse results.
  - o Monitoring locations, key species, and monitoring techniques.
- Y Prior to implementation, work with NRCS to complete an assessment of the site using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).
- Y During implementation, keep the following documentation:
  - o Livestock herd management records with seasonally important phenological stages of plant growth relative to species of concern.
  - o Annually complete a forage utilization worksheet, such as NRCS Conservation Practice Standard Prescribed Grazing (Code 528) job sheet.
  - o Grazing intensity records for all key grazing areas that accommodate the criteria.
- Y During implementation, defer, rest, or graze the enhanced, delineated Monarch areas to meet the nectar-producing forbs, including milkweed, needs of Monarch Butterflies when the Monarchs will be migrating through the area (e.g. spring and fall for the



# CONSERVATION STEWARDSHIP PROGRAM

southern Great Plains, summer and fall for the Midwest, northern Great Plains and east, and spring through fall for the west.

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

**NRCS will:**

- Y As needed, provide technical additional assistance to the participant as requested.
- Y Prior to implementation, verify there are at least two delineated Monarch areas within the enrolled area, comprising at least 5 acres or 5% of the enrolled area, whichever is most.
- Y Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) as it relates to implementing this enhancement, including any state approved job sheets or work sheets.
- Y Prior to implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). Minimum score after implementation will be one category higher than initial score when specifically rated for Monarch Butterflies.

**WHEG score before implementation:** \_\_\_\_\_

**WHEG score after implementation:** \_\_\_\_\_

- Y Prior to implementation, assist the participant with development of a grazing plan, if requested. If NRCS does not assist with plan development, the plan(s) will be reviewed by NRCS for approval prior to implementation to confirm the written objectives meet the criteria of the enhancement.
- Y During implementation, as requested, assist the participant with adapting the grazing strategy and plan to current conditions.



# CONSERVATION STEWARDSHIP PROGRAM

Y After implementation, review grazing plan, records, and documentation to verify the enhancement was implemented to meet the criteria.

Y After implementation, complete an assessment of the site with the participant using the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG). Minimum score after implementation will be one category higher than initial score when specifically rated for Monarch Butterflies. **WHEG score after implementation:** \_\_\_\_\_

### NRCS Documentation Review:

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## ALABAMA – E528B Supplement- Grazing management that improves Monarch butterfly habitat

### Requirements:

1. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock should be restricted from sensitive areas.
  2. Average annual livestock dry matter needs will be balanced with available forage without deficiency for the yearly summary. The Forage/Animal Balance Worksheet will be completed to document.
  3. Livestock will be rotated between at least 3 pastures in a particular functional-group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Starting and ending grazing periods will meet the guidelines in the table below. Pastures will be sized and stocked to facilitate meeting the requirements for grazing heights and resting periods. It is anticipated that with a three-pasture rotation that each pasture would rest about 66 percent of the grazing cycle. Additional pastures are preferred and will enable more forage rest.
  4. Suitable Monarch habitat is not normally present in Alabama pastures. Monarch habitat plants must be established according the table at the end of this document. Milkweed species (*Asclepias* sp.) are known to contain toxins that can be lethal for livestock if consumed in large quantities. Livestock do not normally eat milkweed due to an undesirable taste however livestock should not be allowed to graze areas planted to milkweed when other forage sources are not plentiful, such as during times of drought. Monarch habitat planting areas must be excluded from other pasture areas by polywire or other fencing and livestock allowed to graze through on an infrequent basis (once or twice a year) once plants are fully established. Do not mow milkweed areas for hay because the toxins do not break down even after drying. Delineate Monarch areas within the pastureland comprising at least 5 acres or 5% of the pastureland acres, whichever is most. The area should be treated with appropriate herbicides prior to establishment of monarch/pollinator habitat if johnsongrass, bermudagrass, bahiagrass, fescue or other hard to eradicate species are present. Treatments in two consecutive years or twice in one year is allowable for introduced pasture grasses, because they are so tough to eradicate. Common herbicide applications are spring and summer prior to fall planting or spring and fall prior to spring planting. **Tillage, if planned, should occur prior to the last chemical application.** It is best to use herbicides to kill competing vegetation and then do a prescribed burn afterwards to expose mineral soil rather than tillage. Tillage brings weed seeds to the soil surface that can be very competitive with the planted seeds.
- For sites that are tilled, smooth the area by disking and dragging. After smoothing, the site should be conditioned by using a culti-packer, roller, or other equipment to compact the soil surface. This will keep the seed from being buried too deeply.
  - Sites that are burned (and not tilled) will not need to have the soil surface compacted with equipment.
  - A firm seed bed is essential and never plant seeds deeper than ¼”.
  - Fall or dormant season planting is recommended for forbs/wildflowers since seed germinates better after exposure to a period of cold temperature and moisture (stratification). On sites where weeds have been eliminated and are completely dead by fall, forb seed can be planted in late fall by hand or drill with no soil tillage (seed will work its way down as the soil freezes and thaws over winter).
  - After planting on a rolled or cultipacked site, roll or culti-pack the area again to ensure good seed to soil contact.
  - Select plants from the approved plant list. At least three must be planted from each bloom period for a total of at least 9 species.
  - More diverse mixes will likely result in superior habitat for monarchs and for pollinator communities in general, so please aim to include mixes with more than 9 species of monarch plants where possible. More diverse mixes can be designed without major increase in cost by adding a mixture of low-priced, moderately-priced and high-priced species.

List of planned species and rates must be generated with the Alabama Monarch Butterfly Seed Mixture Calculator (Excel spreadsheet). Work with a seed vendor or nursery to obtain appropriate plant materials, make substitutions as needed based on available plant materials and site conditions. The list of species and rates must be approved by NRCS before practice is installed. Examples of seed mixtures are provided in the Alabama Monarch Butterfly Seed Mixture Calculator (Excel spreadsheet). There are many species mixture possibilities.

- If using a native seed drill, mix seed with a carrier such as pelletized lime or cat litter (clay bentonite) so that small seed are spread evenly.
- When broadcasting seed, mix seed with a carrier such as pelletized lime, cat litter (clay bentonite), sand, soy hulls, or cracked corn in order to facilitate good seed coverage. Use at least 3 times as much carrier as seed. The more the seed is diluted, the better it will be distributed. Divide the seed/carrier mixture in half. Broadcast half the mixture in one direction over the area, then broadcast the other half at a right angle to the first pass to insure equal coverage.
- Planting multiple species of *Coreopsis* or *Rudbeckia* should be avoided.
- Maintenance shall be completed on these areas beginning the second winter after establishment outside of the season when monarch larvae or adults are present. December and January are the best months to perform maintenance in Alabama. Some form of maintenance must be completed on all acres at least once every 3 years or the preferred method of 1/3 of acreage annually on a 3-year rotation. If annual grazing has not maintained the Monarch habitat in good condition, prescribed burning is the recommended form of maintenance, but mowing or light disking is acceptable. Growing season burns will provide better control of woody plants. Mowing only could allow a duff layer to develop and potentially limit pollinator plant growth and survival. Disking should be limited to a very shallow depth as the seeds of monarch/pollinator plants are generally small and will not survive being covered with more than 1/4" of soil or plant debris.
- Spot spraying of invasives or unwanted vegetation is recommended but ensure herbicide label directions are followed.

\*Some information was obtained from the South Carolina NRCS monarch butterfly habitat establishment job sheet.

**5.** Perform a soil test annually for each field with different soils and/or management and apply lime and fertilizer according to soil test results. If manure or by-products are applied, follow Phosphorus Index and Nitrogen Leaching Index limitations according to the Nutrient Management Standard (590).

**6.** Seed invoices are required. Photographs of habitat areas should be taken after plants are fully established and grazing records specific to these areas kept, in addition to regular grazing records.

**7.** Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Records should be submitted quarterly along with the Pasture Condition Score.

Grazing will be managed according to the Prescribed Grazing (528) Standard.

The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table). Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.

**FORAGE GUIDELINES FOR PRESCRIBED GRAZING SYSTEMS**

<b>Common Forages</b>	<b>Begin Grazing (in)</b>	<b>End Grazing (in)</b>	<b>Usual days of Rest</b>
Alfalfa grazing types	10	4	35 - 40
Bahiagrass	6	2	10 - 20
Bermudagrass common	5	2	7 - 10
Bermudagrass hybrid	6	3	7 - 10
Big Bluestem	18	10	30 - 45
Dallisgrass	6	3	7 - 15
Eastern Gamagrass	15	8	30 - 45
Tall Fescue	6	3	15 - 30
Indiangrass	12	6	30 - 40
Orchardgrass	8	3	15 - 30
Switchgrass	18	10	30 - 45

# Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						



## SPECIES RECOMMENDED FOR MONARCH BUTTERFLY PLANTING AREAS IN ALABAMA

The following list of monarch butterfly plants are eligible for planting as part of the NRCS Monarch Butterfly Habitat establishment practice. The practice requires a mixture of seeds to be planted at a density of 50 pure live seeds per square foot. Milkweed must make up a minimum of 1.5% of the total mixture. Seeds per pound are required to calculate the mixtures and determine if milkweed seeds are present in numbers to meet national requirements (1.5%). There is an excel spreadsheet that can be used by NRCS employees to assist with mixture development. Please consult this list (soil moisture, sun and color may be important to landowner needs) when developing your species to include in the excel spreadsheet. **Species highlighted in yellow have less value to monarch butterflies but are beneficial to other pollinator species. Only one yellow highlighted species may be included in the mix for monarch butterfly habitat establishment.** Tropical milkweed (*Asclepias curassavica*) should not be planted under any circumstances as part of a monarch butterfly habitat establishment effort.

### Southeastern regional ecotype seed should be used if available, ask seed vendors

Flowering Period	Soil Moisture	Sun	Botanical Name	Common Name	Color	Height	Seeds Per PLS Pound*
Early	dry to medium	sun to partial shade	<i>Coreopsis lanceolata</i>	Lanceleaf tickseed	yellow	1' – 2'	220,000
Early	medium to wet	full sun	<i>Coreopsis tinctoria</i>	Plains Coreopsis	yellow, red	1' – 3'	3,200,000
Early	dry to medium	full sun	<i>Asclepias syriaca</i>	Common milkweed	pink	3' – 6'	48,000
Early	dry to medium	full sun	<i>Asclepias tuberosa</i>	Butterfly milkweed	orange	2' – 3'	56,000
Early	dry to wet	full sun	<i>Penstemon digitalis</i>	Smooth beardtongue	white	2' – 4'	1,800,000
Early	dry to medium	sun to partial shade	<i>Rudbeckia hirta</i>	Black-eyed Susan	yellow,	2' – 3'	1,600,000
Early	medium to wet	full sun	<i>Zizia aurea</i>	Golden alexander	yellow	2' – 3'	192,000
Early	Dry to medium	sun to partial shade	<i>Echinacea pallida</i>	Pale purple coneflower	pink	2' – 3'	80,000
Early	Dry to medium	full sun	<i>Coreopsis grandiflora</i>	Large-flowered tickseed	Yellow	1' – 2'	227,000
Early	Dry to medium	full sun to partial shade	<i>Phlox divaricata</i>	Eastern blue phlox	Blue	up to 1'	170,000
Early	Medium to wet	full sun	<i>Coreopsis tripteris</i>	Tall tickseed	Yellow	2' – 8'	170,000
Early	dry to medium	full sun	<i>Monarda punctata</i>	Spotted beebalm	white, purple, yellow	1' - 3'	1,500,000
Early	Medium to wet	full sun to partial shade	<i>Amsonia tabernaemontana</i>	Eastern bluestar	blue	2' – 3'	22,400
Mid	moist to mesic	full sun	<i>Liatris spicata</i>	Dense or Spiked blazing star	rosy-pink-purple	2' – 4'	190,000
Mid	dry to medium	full sun to partial shade	<i>Dracopis amplexicaulis</i>	Clasping coneflower	yellow	1' – 2'	1,600,000
Mid	moist	sun to partial shade	<i>Desmanthus illinoensis</i>	Illinois bundleflower	white	2' – 3'	200,000
Mid	moist to dry	sun to partial shade	<i>Echinacea purpurea</i>	Purple coneflower	lavender	2' – 4'	115,000
Mid	dry to medium	full sun	<i>Ratibida pinnata</i>	Greyheaded coneflower	yellow	3' – 5'	450,000
Mid	medium to wet	sun to partial shade	<i>Eupatorium perfoliatum</i>	Boneset	white	4' – 6'	2,000,000
Mid	dry to wet	full sun	<i>Eupatorium rotundifolium</i>	Roundleaf thoroughwort	white	1' – 3'	2,000,000
Mid	dry to wet	sun to partial shade	<i>Monarda fistulosa</i>	Bergamot	lavender	2' – 4'	1,250,000
Mid	dry to wet	full sun	<i>Heliopsis helianthoides</i>	False sunflower or smooth oxeye	yellow	3' – 6'	105,000
Mid	Dry to medium	full sun	<i>Pycnanthemum tenuifolium</i>	Slender mountainmint	White	2' - 3'	6,000,000
Mid	Dry to wet	full sun to partial shade	<i>Pycnanthemum incanum</i>	Hoary mountainmint	white	2' – 3'	6,000,000
Mid	Dry to medium	full sun to partial shade	<i>Pycnanthemum muticum</i>	Clustered mountainmint	white	2' – 4'	2,240,000
Mid	Medium to wet	partial shade	<i>Penstemon laevigatus</i>	Eastern smooth beardtongue	Light purple-white	2' – 3'	350,000
Mid	Dry to medium	full sun	<i>Eryngium yuccifolium</i>	Rattlesnake master	white	4' – 5'	128,000

Mid	Dry to medium	full to partial shade	<i>Asclepias verticillata</i>	Whorled milkweed	white	1' – 3'	182,000
Mid	Dry to wet	full sun	<i>Eupatorium hyssopifolium</i>	Lanceleaf thoroughwort	white	2' – 4'	2,000,000
Mid	Medium to wet	full sun to partial shade	<i>Phlox pilosa</i>	Prairie phlox	Pink	1' – 2'	304,000
Mid	Dry to medium	full sun	<i>Salvia coccinea</i>	Scarlet sage	Scarlet	1' - 3'	276,800
Mid	Dry to medium	full sun	<i>Silphium asteriscus</i>	Starry rosinweed	yellow	2' – 5'	20,800
Mid	Dry to medium	full sun to partial shade	<i>Silphium laciniatum</i>	Compass plant	yellow	3' – 8'	10,560
Mid	Dry to medium	full sun to partial shade	<i>Silphium trifoliatum</i>	Southern rosinweed	yellow	up to 5'	20,800
Late	medium to wet	partial shade	<i>Eutrochium purpureum</i>	Sweet Joe-pye weed	pink	5' – 7'	672,000
Late	dry to medium	full sun	<i>Gaillardia pulchella</i>	Indian blanket	yellow, red	1' – 2'	238,000
Late	medium to wet	partial shade	<i>Helianthus angustifolius</i>	Narrow Leaved sunflower	yellow	3' – 6'	504,000
Late	Moist	full sun	<i>Helenium autumnale</i>	sneezeweed	Yellow	3' – 4'	2,000,000
Late	medium to wet	partial shade	<i>Verbesina alternifolia</i>	Yellow wingstem	yellow	4' – 8'	145,000
Late	medium to wet	partial shade	<i>Verbesina virginica</i>	White wingstem	white	3' – 6'	260,000
Late	moist	full sun to partial shade	<i>Vernonia gigantea</i>	Ironweed	purple	5' – 8'	320,000
Late	dry to medium	full sun	<i>Helianthus maximiliani</i>	Maximilian sunflower	yellow	3' – 10'	210,000
Late	moist	full sun	<i>Bidens aristosa</i>	Showy tickseed	yellow	2' – 3'	130,000
Late	Dry to medium	full sun to partial shade	<i>Symphotrichum novae-angliae</i>	New England aster	purple	4' – 5'	1,056,000
Late	Dry to medium	full sun	<i>Symphotrichum laevis</i>	Smooth aster	Blue	2' – 3'	750,000
Late	Medium to wet	full sun to partial shade	<i>Lobelia siphilitica</i>	Blue lobelia	blue	2' – 3'	8,000,000
Late	Dry to medium	full sun to partial shade	<i>Liatris aspera</i>	Button blazing star	purple	2' – 3'	256,000
Late	Dry to moist	partial shade	<i>Desmodium paniculatum</i>	Panicked tick trefoil	Purple	2' – 5'	106,000
Late	Dry to moist	full sun	<i>Symphotrichum pilosum</i>	White oldfield aster	White	3' – 5'	700,000
Late	Medium to moist	full sun	<i>Eutrochium fistulosum</i>	Tall Joe Pye Weed	pink, purple	5' – 8'	2,000,000
Late	Medium to wet	full sun to partial shade	<i>Asclepias incarnata</i>	Swamp milkweed	pink	4' – 5'	70,000
Late	Dry to medium	full sun to partial shade	<i>Liatris tenuifolia</i>	Shortleaf blazing star	purple	3' – 5'	190,000
Late	Dry to medium	full sun	<i>Salvia azurea</i>	Pitcher sage	blue and white	3' – 5'	149,000
Late	Medium/moist	partial shade	<i>Symphotrichum lateriflorum</i>	Calico aster	white, purple	1' – 2'	4,000,000

Forb (flowering) mixtures should contain at least 3 species from each of the 3 bloom periods (Early, Mid, Late). The 3 species need not be in bloom for the entirety of a bloom period. Mixtures of forbs and/or legumes should be planted at the rate of 50 pure live seed (PLS) per square foot.

### Native Grasses

Native grasses (NWSG) are key components of natural herbaceous plant communities and may be a necessary component for the establishment of monarch butterfly habitat on some sites. NWSG aren't host or nectar species for monarch butterflies but many other butterfly species utilize them as host plants. NWSG may be added to the mixture if the landowner or NRCS agent believe it is necessary for ecological stability of the site or as structure for the benefit of the pollinator species. **NWSG should not be planted at a rate greater than 1 pound per acre.** NWSG are not a substitute for the approved monarch pollinator species – they are in addition to the pollinator species. NWSG provide fuel for prescribed burning and maintenance of pollinator and monarch butterfly habitat.

<u>Soil moisture</u>	<u>Sun</u>	<u>Botanical name</u>	<u>Common name</u>	<u>Height</u>	<u>Notes</u>
Dry to medium	sun to partial shade	<i>Schizachyrium scoparium</i>	little bluestem	3-6'	likes a dry site
Dry to medium	sun to partial shade	<i>Sorghastrum nutans</i>	Indiangrass	3-8'	no more than 0.5 lbs./acre
Medium to wet	sun to partial shade	<i>Elymus virginicus</i>	Virginia wild rye	2' – 3'	cool season grass
Likes wet soils	sun to partial shade	<i>Tripsacum dactyloides</i>	Eastern gamagrass	up to 8'	
moist to dry	sun to partial shade	<i>Andropogon gerardii</i>	big bluestem	4-8'	no more than 0.5 lbs/acre

Dry to medium sun to partial shade

*Bouteloua curtipendula*

sideoats grama

1-3'

**After establishment** – Grass selective herbicides such as those with clethodim will not harm the forbs, legumes or any broadleaf plants in a monarch habitat establishment area but will remove any grasses that are present, including native warm season grasses. Spot spraying may be necessary if grasses need control. Read and apply as per label instructions.

\*PLS = Pure Live Seed (% purity x % germination = % pure live seed)

**Example:** Where Purity is 90% (meaning 90% of the weight being purchased is actual seed) and where Germination is 70%, (meaning 70% of the actual seed are guaranteed to be viable). In this Example **PLS = .90 X .70 = 63 percent**

So, in this example, every 100 pounds of bulk seed you get actually contains 63 pounds in pure, viable seed.

*As you can see, PLS is NOT the same as bulk seed. Buyer should ensure pricing is based on pls pounds!*

Useful links to determine suitability of plants for inclusion in the seed

mixture include: [Biota of North America Plant Atlas](#)

[Alabama Plant Atlas](#)

[Alabama Butterfly Atlas](#)

[Xerces Society](#)

[Native milkweed fact sheet](#)

[Tropical milkweed fact sheet](#)



## CONSERVATION ENHANCEMENT ACTIVITY

E528G

# CONSERVATION STEWARDSHIP PROGRAM

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

CONSERVATION PRACTICE: 528 - Prescribed Grazing

APPLICABLE LAND USE: Pasture

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 1 years

#### Enhancement Description

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

#### Criteria

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

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## CONSERVATION STEWARDSHIP PROGRAM

- Manage livestock movements based on rate of plant growth, available forage, and allowable utilization target. Develop and follow contingency plans to deal with episodic disturbance events.
- The narrative management recommendations and implementation for duration and intensity of grazing and/or browsing will be based on the desired plant health and productivity objectives.
- Perform a soils test on the applicable acres for organic matter and nutrient analysis through a land grant university or accredited lab.
- Apply fertilizer and/or soil amendments according to a current soil test when plant vigor needs improvement.
- Follow guidelines provided by a Certified Forage and Grassland Professional, Certified Range Management Consultant, or Certified Professional in Range Management, NRCS Technical Service Provider approved for a DIA 159, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices generated through the Pasture Condition Scoring (PCS) assessment tool.

### **Documentation and Implementation Requirements**

#### **Participant will:**

- Prior to implementation, acquire a Grazing Management Plan with all the following components (provide plan to NRCS for review and approval):
  - Producer goals, objectives, and resource concerns
  - Location and condition of structural improvements
  - Watering sites with availability, quantity, and quality
  - Forage inventory
  - Forage-animal balance sheet
  - Grazing plan for livestock movement
  - Contingency plan
  - Monitoring plan
- During implementation, perform a soil test on the applicable acres.



## CONSERVATION STEWARDSHIP PROGRAM

- During implementation, secure a Certified Forage and Grassland Professional, Certified Range Management Consultant, Certified Professional in Range Management, NRCS Technical Service Provider approved for DIA 159, or a non-affiliated consultant with a bachelor or higher level degree in agronomy, range science or other closely-related plant science discipline and a minimum of five years' experience in pastureland conservation planning, monitoring, and consulting regarding use of pastureland improvement practices to:
  - 1) Select a monitoring site in each forage type or forage mixture on the enrolled acreage to assess with the Pasture Condition Scoring tool.
  - 2) Conduct assessments on those sites using the Pasture Condition Scoring tool and document the location.
  - 3) Develop a written recommendation including duration and intensity of grazing and/or browsing based on desired health and productivity objectives while addressing adequate cover, litter, and canopy to maintain or improve infiltration, soil health and reduce soil compaction and other resource concerns identified during the Pasture Condition Score (PCS) assessment.
  
- During implementation, identify key grazing areas and key forage species and monitor pastures for grazing utilization.
  
- During implementation, keep pasture/herd in/out records.
  
- During implementation, complete forage utilization job sheet at the end of the grazing season for NRCS Conservation Practice Standard Prescribed Grazing (528).
  
- During implementation, document adjustments needed to maintain feed and forage balance.
  
- After implementation, provide the following items for review by NRCS:
  - Pasture Condition Score Sheets with all field notes and locations.
  - Soil test analysis.
  - Written documentation from professional with recommendations and follow up actions.
  - Pasture/herd in/out dates.
  - Completed forage utilization job sheet.
  - Animal/forage balance sheet.
  - Written modifications to the grazing management and monitoring plan which address the resource concerns identified from the assessment.



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS will:**

- As needed, provide technical additional assistance to participant as requested.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement, including forage utilization job sheet.
- Prior to implementation, provide soils information and/ or Forage Suitability Groups as requested.
- After implementation, review all Pasture Condition Score sheets and written recommendations made by professional.
- After implementation, review soil test analysis.
- After implementation, verify implementation of the grazing management plan by reviewing grazing/herd in/out records, forage utilization job sheet, animal/forage balance records and changes made to the plan to address resource concerns identified during the Pasture Condition Scoring assessments.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E528G:** Improved grazing management on pasture for plant productivity and health with monitoring activities

### **Conservation Practice: E528 – Prescribed Grazing**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This supplement is designed to improve grazing management on pasture for plant productivity and health with monitoring activities such as Pasture Condition Scoring (PCS). PCS results can be useful in deciding when to move livestock or planning other management actions. It assists in identifying which enhancements are most likely to improve pasture condition or livestock performance. Pasture condition scoring should occur several times a year during key critical management periods throughout the grazing season.

### **Important considerations:**

- Plan the optimal livestock forage strategy for your operation with the help of The Alabama Cooperative Extension System guide to forage selection, establishment, and management: [Pasture and Grazing Management Guide - Alabama Cooperative Extension System \(aces.edu\)](https://aces.edu)
- Utilize rotational grazing as a method to Prescribe Graze forages within the Prescribed Grazing (528) Conservation Practice Standard.
- Use PCS and Step Point Method to assess how well a pasture is being managed and resources protected. Make rating (1 to 5; 1 poorest, 5 best condition) by using the visual evaluation of key indicators such as: Percent Desirable Plants, Percent Legume, Live Plant Cover, Plant Diversity, and Plant Residue. Scoring should be performed:
  - At the start before placing livestock on pasture
  - At peak forage supply periods
  - At low forage supply periods
  - As plant stress appears
  - Near the end of the grazing season to help decide when to remove livestock.Number of points (spots) to be taken depends on the size of pastures, the growth uniformity, soil compaction problem and the previous history of the field.
- Use the National Pasture Condition Scoring Guide and Scoresheet to assess how well a pasture is being managed and resources protected: [National Pasture Condition Scoring Guide and Score Sheet - January 2020.pdf \(usda.gov\)](https://usda.gov). Contact State Agronomy Office for further information on PCS and Step Point Method, and how to take representative samples in the field.
- If using deferment, plan periodic deferment from grazing and/or browsing to maintain or restore the desired plant community following episodic events, such as wildfire or severe drought or renovation or postplanting. It must be 90 consecutive days of livestock exclusion during the growing season on sensitive areas. Where appropriate, do soil test periodically for nutrient status and soil reaction and apply fertilizer and/or soil amendments according to soil test to improve or maintain plant vigor.
- If using rest, it will be 365 consecutive days of livestock exclusion on sensitive areas. Manage grazing and/or browsing animals to maintain adequate cover on sensitive areas (such as riparian areas, wetlands, habitats of concern, karst areas, etc.)



## 2022 Alabama Supplemental Guidance for CSP Enhancement

- When weeds are a significant problem prescribed grazing and/or browsing should be implemented in conjunction with other pest management practices to promote plant community resistance to common or invasive plant species and protect desired plant communities.

### PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.

- Provide NRCS with Goals, objectives, and resource concerns
- Provide maps of the area or location(s), digital images/photos (pre-and post-activity) of the area and indicate area on map, condition of structural improvements such as fencing, watering sites with availability, quantity, and quality,
- A written prescribed grazing plan, grazing records, monitoring plan and data that meet Alabama NRCS Prescribed Grazing (528) Standards and Specifications.
  - Select a monitoring site in each forage type or forage mixture on the enrolled acreage to assess with the Pasture Condition Scoring tool.
  - Conduct assessments on those sites using the Pasture Condition Scoring tool and document the location.
  - 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.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



## 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.



## CONSERVATION STEWARDSHIP PROGRAM

- A monitoring plan
- A contingency plan
- Minimize concentrated livestock areas to enhance nutrient distribution and improve or maintain ground cover.
- Minimize deposition or flow of animal wastes into water bodies or sinkholes,
- Minimize animal impacts on stream bank or shoreline stability,
- Maintain adequate ground cover and plant density to maintain or improve infiltration capacity and reduce runoff, and
- Maintain adequate ground cover and plant density to maintain or improve filtering capacity of the vegetation.
- Livestock feeding and watering facilities will be located and designed/installed in a manner to improve livestock distribution and avoid overland flow to sensitive areas.



## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation, obtain a written grazing plan with guidelines and recommendations for matching the forage quantity and quality produced with the grazing and/or browsing demand. Plan will include a contingency plan for potential events that trigger adverse results, such as concentrated flow and gully erosion.
- Prior to implementation, develop a map delineating potential sensitive areas to be protected.
- During implementation, keep livestock herd management records during seasonally important periods of soil erosion potential.
- During implementation, keep grazing utilization records for key grazing areas that accommodate the criteria above, indicating the protective nature of the grazing system to the sensitive areas.
- After implementation, make the follow items available for review by NRCS to verify implementation of the enhancement:
  - Written grazing plan.
  - Pasture/herd in/out records
  - Documented utilization records.

#### NRCS will:

- As needed, provide technical additional assistance to the participant as requested.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (Code 528) as it relates to implementing this enhancement.
- Prior to implementation, as needed, assist participant with the development of map delineating potential sensitive areas to be protected.



# CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, verify a grazing plan has been developed, which includes written objectives.
- After implementation, verify implementation of the written grazing plan, by reviewing plan and records and utilization records kept during kept during enhancement implementation.
- After implementation, verify the protection and condition of the sensitive areas.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

Date

## ALABAMA – E528M Supplement- Grazing management that protects sensitive areas from gully erosion

### Requirements:

1. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock must be excluded from sensitive areas. Areas with known sinkholes should be flash-grazed.
2. Average annual livestock dry matter needs will be balanced with available forage without deficiency for the yearly summary. The Forage/Animal Balance Worksheet will be completed to document.
3. Livestock will be rotated between at least 3 pastures in a particular functional-group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Starting and ending grazing periods will meet the guidelines in the table below. Pastures will be sized and stocked to facilitate meeting the requirements for grazing heights and resting periods. It is anticipated that with a three-pasture rotation that each pasture would rest about 66 percent of the grazing cycle. Additional pastures are preferred and will enable more forage rest.
4. A contingency plan will be developed denoting the use of sacrifice areas for pasture management during drought or other weather-related events. These areas will be labeled on the conservation plan map.
5. A monitoring site will be selected in each forage type or forage mixture to be evaluated with the Pasture Condition Scoring (PCS) tool **quarterly** (typically, March or April, June or July, September or October, December or January). Sites should be reflective of average conditions of the pasture and labeled on the plan map. Photographs are required at the time of monitoring. The PCS should note whether forages are being actively grazed or in a rest period.
6. Perform a soil test annually for each field with different soils and/or management and apply lime and fertilizer according to soil test results. If manure or by-products are applied, follow Phosphorus Index and Nitrogen Leaching Index limitations according to the Nutrient Management Standard (590).
7. Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Records should be submitted quarterly along with the Pasture Condition Score.

Grazing will be managed according to the Prescribed Grazing (528) Standard.

The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table). Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.

### FORAGE GUIDELINES FOR PRESCRIBED GRAZING SYSTEMS

Common Forages	Begin Grazing (in)	End Grazing (in)	Usual days of Rest
Alfalfa grazing types	10	4	35 - 40
Bahiagrass	6	2	10 - 20
Bermudagrass common	5	2	7 - 10
Bermudagrass hybrid	6	3	7 - 10
Big Bluestem	18	10	30 - 45
Dallisgrass	6	3	7 - 15
Eastern Gamagrass	15	8	30 - 45
Tall Fescue	6	3	15 - 30
Indiangrass	12	6	30 - 40
Orchardgrass	8	3	15 - 30
Switchgrass	18	10	30 - 45

## Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

## Pasture Condition Score Sheet

Operator:		Date:	
Evaluator:		Pasture ID:	
Soil(s), ESD(s) and or FSG(s):		Livestock type:	
Current Season's Precipitation (check one)	Above Normal ◦      Normal ◦      Below Normal ◦		
Seasonal Temperature Trend (check one)	Above Normal ◦      Normal ◦      Below Normal ◦		

Evaluate the site and rate each indicator based upon your observations. Scores for each indicator may range from 1 to 5. Sum the indicator scores to determine overall pasture condition score.

Indicator	1 Point	2 Points	3 Points	4 Points	5 Points	Score
<b>Percent Desirable Plants*</b> (Dry Weight; for Livestock Type)	Desirable species <20% of stand.	Desirable species 20 – 40% of stand.	Desirable species 41 – 60% of stand.	Desirable species 61 – 80% of stand.	Desirable species exceed 80% of stand.	Points
<b>Percent Legume by Dry Weight</b>	<5% <b>OR</b> >50% bloating legumes.	5-10% legumes <b>OR</b> >40% bloating legume.	11-20% legumes.	21-30% legumes.	31-40% legumes. No grass loss; grass may be increasing.	
<b>Live (includes dormant) Plant Cover</b>	Less than 40% is live leaf canopy. Remaining is either dead standing material, or bare ground.	40-65% is live leaf canopy. Remaining is either dead standing material, or bare ground.	66-80% live leaf canopy. Remaining is either dead standing material, or bare ground.	81-95% live leaf canopy. Remaining is either dead standing material, or bare ground.	More than 95% live (non-dormant) leaf canopy. Remaining is either dead standing material, or bare ground.	
<b>Plant Diversity by Dry Weight</b> (*See footnote at bottom of page)	<b>Diversity:</b> Very low  <50% desirable species  <b>OR</b> 1 dominant desirable species in 1 functional group  <b>OR</b> No dominant desirable species and all minor species in each functional group totaling <15%	<b>Diversity:</b> Low  2 dominant desirable species in 1 functional group  <b>OR</b> 2 functional groups each represented by minor species totaling ≥15%	<b>Diversity:</b> Moderate  3 dominant desirable species in 1 functional group  <b>OR</b> 2-3 dominant desirable species in 2 functional groups  <b>OR</b> 3 functional groups each represented by minor species totaling ≥15%	<b>Diversity:</b> High  4 dominant desirable species in 2 functional groups  <b>OR</b> 3 dominant desirable species in 3 functional groups  <b>OR</b> 3 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	<b>Diversity:</b> Very high  4 dominant desirable species in 3 functional groups  <b>OR</b> 4 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	
	<b>Plant Residue and Litter as Soil Cover</b> ( <i>Pull back canopy</i> )	Bare soil is very easily seen;  There is <20% cover on the soil surface or it is excessive, and slow to break down.	Openings of bare soil can be seen fairly easily;  Soil cover is 21-40%.	Small openings of bare soil can be seen, but minimal;  Soil cover is 41-60%.	No bare soil is easily seen;  Soil cover is 61-80%.	No bare soil is seen;  Soil cover is >80% with good biological activity and decomposition of older residue.
<b>Grazing Utilization and Severity</b>	Pasture is overgrazed throughout.	Pasture consists primarily of overgrazed and/or refused areas (former dung areas, older plants, undesired plants).	Pastures show uneven grazing throughout with heavier grazing near water or feeding areas, or distinct zone grazing.	Pasture grazed evenly throughout with minimal overgrazing with some under grazed small areas and heavier use near water sources.	Pasture grazed evenly throughout with no overgrazing.	

\*Use NRCS plant list for livestock species. Functional groups are as appropriate for your state (cool-season grasses, legumes, warm-season grasses, non-leguminous forbs). **Any time there are more undesirables than desirables, it will be 1 point. Desirable species must total more than 50% of the total biomass. Dominant species are ≥15%. Functional groups must be ≥15% of stand to be counted.**

Indicator	1 Point	2 Points	3 Points	4 Points	5 Points	Points
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<b>Livestock Concentration Areas</b> (If field <1 acre, see ** footnote)	Livestock concentration areas are within 100 feet of, or are a direct conveyance to surface water, and cover more than 0.1 acre, including trails.	Livestock concentration areas are within 100 feet of, or are a direct conveyance to surface water, and cover less than 0.1 acre, including trails.	Livestock concentration areas are farther than 100 feet from and are not a direct conveyance to surface water, and cover more than 0.1 acre, including trails.	Livestock concentration areas are farther than 100 feet and are not a direct conveyance to surface water, and cover less than 0.1 acre, including trails.	Livestock concentration areas, including trails, not present.	
<b>Soil Compaction and Soil Regenerative Features</b> (**See footnote at bottom of page)	<b>Compaction:</b> Dense or thick platy layer very distinct;	<b>Compaction:</b> Dense or moderate platy layer noticeable;	<b>Compaction:</b> Thin dense or platy layer still present;	<b>Compaction:</b> Minor dense or platy layer; good aggregates common (crumbly soil);	<b>Compaction:</b> No dense or platy layers; crumbly soil throughout;	
	<b>Roots:</b> Dominantly horizontal; most shallow/sparse;	<b>Roots:</b> Numerous horizontal; moderate amount shallow/sparse;	<b>Roots:</b> Some horizontal with increasing downward;	<b>Roots:</b> Few horizontal, more downward through the soil profile;	<b>Roots:</b> Abundant growth primarily downward through the soil profile;	
	<b>Color:</b> Surface horizon same as subsoil;		<b>Color:</b> Surface horizon moderately darker than subsoil;		<b>Color:</b> Surface horizon dramatically darker than subsoil;	
	<b>Soil Life:</b> Few or no signs.	<b>Soil Life:</b> Signs scattered in surface layer.	<b>Soil Life:</b> Signs scattered throughout.	<b>Soil Life:</b> Signs numerous throughout.	<b>Soil Life:</b> Signs abundant throughout.	
<b>Plant Vigor</b>	No plant recovery after grazing/harvest. Pale, yellow or brown, or severe stunting of desirable forage.	Some recovery. Yellowish green forage, or moderately or slight stunting of desirable forage.	Adequate recovery of desirable forage. Yellowish and dark green areas due to manure and urine patches.	Good recovery of desirable forage. Light green and dark green forage present.	Rapid recovery of desirable forage. All healthy green forage.	
<b>Erosion</b>  (Circle all that apply; the overall indicator score will be the lowest rating indicated)	<b>Sheet and Rill:</b> Plant density is insufficient to stop runoff, with poor infiltration. Erosion easily visible throughout pasture;	<b>Sheet and Rill:</b> Plant density slows runoff. Erosion present and easily seen on steeper terrain;	<b>Sheet and Rill:</b> Plant density good and runoff moderate. If present, erosion concentrated on heavily used areas;	<b>Sheet and Rill:</b> Plant density high, runoff low, good infiltration. May have evidence of past erosion if present;	<b>Sheet and Rill:</b> Plant density high, no runoff, good infiltration. No evidence of present or past erosion;	
	<b>Wind:</b> Severe scoured areas and deposition throughout;	<b>Wind:</b> Scoured areas common, deposition effecting plants;	<b>Wind:</b> Occasional scoured areas, litter windrolled;	<b>Wind:</b> Minimal soil exposed, some detached vegetation windrolled, minor plant damage;	<b>Wind:</b> No exposed soil;	
	<b>Streambank and/or Shoreline:</b> Banks bare, major sloughing, no bank vegetation;	<b>Streambank and/or Shoreline:</b> More than half the bank vegetation trampled; sloughing.	<b>Streambank and/or Shoreline:</b> Less than half the bank vegetation trampled; eroding at crossing/entrances.	<b>Streambank and/or Shoreline:</b> Eroding at crossings, entrances; all the bank vegetation is intact and banks are stable.	<b>Streambank and/or Shoreline:</b> Vegetation intact and stable, hardened crossings and alternative water sources used;	
	<b>Gully:</b> Very large mass movement, caving sides.	<b>Gully:</b> Advancing upslope, increasing fingering extensions.	<b>Gully:</b> Not all active but extensions present.	<b>Gully:</b> Stable with vegetative cover.	<b>Gully:</b> None, drainage ways vegetative.	

\*\* If field size is less than 1 ac. Use 10% of field size in place of 0.1 acre. \*\*\*Use a shovel. Root and Compaction subindicators are primary and should be considered first. Soil color and soil life are secondary subindicators which can be considered where applicable.

Overall Pasture Condition Score	Individual Indicator Score	Management Change Suggested
45 to 50	5	No changes in management needed at this time.
35 to 45	4	Minor changes would enhance, do most beneficial first.
25 to 35	3	Improvements would benefit productivity and/or environment.
15 to 25	2	Needs immediate management changes, high return likely.
10 to 15	1	Major effort required in time, management and expense.

Overall Pasture Condition Score =

Comments/Notes:



## 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

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## CONSERVATION STEWARDSHIP PROGRAM

of grazing and/or browsing needed as determined through the planning process with: 1) Clear objectives, 2) A resource inventory including forage inventory, structural improvements and existing resource conditions, 3) Grazing schedule, and 4) All potential contingency plans.

- A written plan to monitor and document Body Condition Scores monthly using Land Grant University Scoring Guidelines.
- Supplemental feed and/or mineral will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.
- Animals must maintain ideal/Land Grant University recommended BCS for their breed, phase of production, or livestock type. (animals should not be emaciated to thin, or fat to obese).



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### **Participant will:**

- Prior to implementation, acquire a Grazing Management Plan with all the following components: (provide plan to NRCS for review and approval)
  - Producer goals and objectives
  - Location and condition of structural improvements
  - Watering sites with availability, quantity and quantity
  - Forage inventory
  - Forage-animal balance sheet
  - Grazing plan for livestock movement
  - Contingency plan
  - Monitoring plan
- Prior to implementation, develop a written BCS monitoring plan
- During implementation keep a record of livestock movement and BCS of livestock type, breed and phase of production
- During implementation, keep a record of supplemental feeding
- During implementation, take photos of livestock from several representative animals. Photos should be taken of the side with the entire animal in the picture frame
- After implementation, provide the following items for review by NRCS:
  - Map of paddocks used
  - Forage-animal balance sheet
  - Records of livestock movement through paddocks
  - BCS monitoring plan with livestock photos
  - Supplemental feeding plan
  - Written modifications to grazing management plan based on results of BCS monitoring and supplemental feeding program

### **NRCS will:**

- As needed, provide technical assistance to participant as requested
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement

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# CONSERVATION STEWARDSHIP PROGRAM

- 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

## ALABAMA – E528Q Supplement- Use of body condition scoring for livestock on a monthly basis to keep track of herd health

### Requirements:

1. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock should be restricted from sensitive areas.
2. Average annual livestock dry matter needs will be balanced with available forage without deficiency for the yearly summary. The Forage/Animal Balance Worksheet will be completed to document.
3. Livestock will be rotated between at least 3 pastures in a particular functional-group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Starting and ending grazing periods will meet the guidelines in the table below. Pastures will be sized and stocked to facilitate meeting the requirements for grazing heights and resting periods. It is anticipated that with a three-pasture rotation that each pasture would rest about 66 percent of the grazing cycle. Additional pastures are preferred and will enable more forage rest.
4. A contingency plan will be developed denoting the use of sacrifice areas for pasture management during drought or other weather-related events. These areas will be labeled on the conservation plan map.
5. A monitoring site will be selected in each forage type or forage mixture to be evaluated with the Pasture Condition Scoring (PCS) tool **quarterly** (typically, March or April, June or July, September or October, December or January). Sites should be reflective of average conditions of the pasture and labeled on the plan map. Photographs are required at the time of monitoring. The PCS should note whether forages are being actively grazed or in a rest period.
6. Perform a soil test annually for each field with different soils and/or management and apply lime and fertilizer according to soil test results. If manure or by-products are applied, follow Phosphorus Index and Nitrogen Leaching Index limitations according to the Nutrient Management Standard (590).
7. Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Records should be submitted quarterly along with the Pasture Condition Score.

Grazing will be managed according to the Prescribed Grazing (528) Standard.

The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table). Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.

### FORAGE GUIDELINES FOR PRESCRIBED GRAZING SYSTEMS

Common Forages	Begin Grazing (in)	End Grazing (in)	Usual days of Rest
Alfalfa grazing types	10	4	35 - 40
Bahiagrass	6	2	10 - 20
Bermudagrass common	5	2	7 - 10
Bermudagrass hybrid	6	3	7 - 10
Big Bluestem	18	10	30 - 45
Dallisgrass	6	3	7 - 15
Eastern Gamagrass	15	8	30 - 45
Tall Fescue	6	3	15 - 30
Indiangrass	12	6	30 - 40
Orchardgrass	8	3	15 - 30
Switchgrass	18	10	30 - 45

### Body Condition Scores

Body condition scoring (BCS) is an on-the-hoof visual appraisal using numbers (1–9) to suggest the relative body fat of the beef cow. With this nine-point scale, a score of 1 represents a very thin body condition and a score of 9 represents extreme obesity. For mature cows, a target BCS score of 5 to 6 is recommended at calving.

Because heifers are still growing, however, their nutritional requirements are higher, so manage heifers to calve in BCS 6. It is important to remember that the single greatest factor influencing rebreeding performance of beef cows is body condition at calving.

Condition scoring cows and heifers allows us to properly plan and adjust forage and feeding programs. Key times to body condition score beef cattle are

- Weaning
- 60 to 90 days before calving
- At calving
- The beginning of the breeding season

Keep records of body condition scores to track changes in the herd throughout the calendar year. For most cows, an increase of one body condition score equates to gaining about 80 to 100 pounds of body weight. The accompanying photos and descriptions describe the nine body condition scores.

#### Steps to Evaluating Body Condition Score

- Evaluate fat cover from the front, side, and rear of the animal.
- Ask if the skeletal structure is visible or if the animal has a smooth appearance.
- Use Table 11 to determine relative condition.

#### Body Condition Score and Reproductive Implications

Body condition score relates to overall reproductive health of cows and first-calf heifers and represents a measure of energy reserve of the animal. Decreased conception rates and increased calving interval length is often observed in animals with too low or high body condition (tables 9 and 10).

**Table 9.** Relationship of Body Condition Score to Beef Cow Performance

BCS	Pregnancy Rate (%)	Calving Interval (days)
3	43	414
4	61	381
5	86	364
6	93	364

Adapted from Kunkle et al., 1998

**Table 10.** Problems Associated with Thin and Fat Body Condition

Thin Condition BCS 1- 4	Fat Condition BCS 8-9
1. Failure to cycle	1. Costly to maintain
2. Failure to conceive	2. Increased dystocia
3. Increased calving interval	3. Impaired mobility
4. Increased days to estrus	4. Failure to cycle
5. Decreased calf vigor	5. Failure to conceive

-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. (Cows-BCS 5-6, heifers- BCS 6)

-Photos must be taken each month that livestock are present. From type of livestock, photos must be taken of 2-3 representative animals. Representative meaning the animal has body condition score like most of the other animals of that type.

Score	Description
1	<b>Emaciated.</b> No palpable fat is detectable over the spinous processes, transverse processes, ribs, or hooks. The tailhead and ribs appear very prominently.
2	<b>Poor.</b> Animal is still somewhat emaciated but the tailhead and ribs are less prominent. Individual spinous processes are still sharp to the touch. Some tissue cover is present over the ribs toward the top of the back.
3	<b>Thin.</b> Beginning of fat cover over the loin, back, and foreribs. Backbone still highly visible. Processes of the spine can be identified individually by touch and may still be visible. Spaces between the processes are less pronounced.
4	<b>Borderline.</b> The foreribs are not noticeable, although the twelfth and thirteenth ribs are still noticeable to the eye, particularly in cattle with a big spring of rib and ribs wide apart. The transverse spinous processes can be identified only by palpation to feel rounded rather than sharp. Full but straightness of muscling in the hindquarters.
5	<b>Moderate.</b> The twelfth and thirteenth ribs are not visible to the eye. Areas on the side of the tailhead are filled but not mounded.
6	<b>High Moderate.</b> The ribs are not noticeable to the eye. There is fat around the tailhead. The hindquarters are full and plump. The skin has a smooth appearance.
7	<b>Good.</b> Abundant fat cover on either side of the tailhead. The cow appears in very good flesh, but not overconditioned.
8	<b>Fat.</b> The animal is very fleshy and appears overconditioned. Large fat deposits are present over the ribs and around the tailhead. Fat pones around tailhead are obvious.
9	<b>Extremely fat.</b> The overall appearance is blocky. Tailhead and hooks are buried in fatty tissue. Bone structure is no longer visible and barely palpable.







## Pasture Condition Score Sheet

Operator:		Date:	
Evaluator:		Pasture ID:	
Soil(s), ESD(s) and or FSG(s):		Livestock type:	
Current Season's Precipitation (check one)	Above Normal ◦      Normal ◦      Below Normal ◦		
Seasonal Temperature Trend (check one)	Above Normal ◦      Normal ◦      Below Normal ◦		

Evaluate the site and rate each indicator based upon your observations. Scores for each indicator may range from 1 to 5. Sum the indicator scores to determine overall pasture condition score.						Score
Indicator	1 Point	2 Points	3 Points	4 Points	5 Points	Points
<b>Percent Desirable Plants*</b> (Dry Weight; for Livestock Type)	Desirable species <20% of stand.	Desirable species 20 – 40% of stand.	Desirable species 41 – 60% of stand.	Desirable species 61 – 80% of stand.	Desirable species exceed 80% of stand.	
<b>Percent Legume by Dry Weight</b>	<5% <b>OR</b> >50% bloating legumes.	5-10% legumes <b>OR</b> >40% bloating legume.	11-20% legumes.	21-30% legumes.	31-40% legumes. No grass loss; grass may be increasing.	
<b>Live (includes dormant) Plant Cover</b>	Less than 40% is live leaf canopy. Remaining is either dead standing material, or bare ground.	40-65% is live leaf canopy. Remaining is either dead standing material, or bare ground.	66-80% live leaf canopy. Remaining is either dead standing material, or bare ground.	81-95% live leaf canopy. Remaining is either dead standing material, or bare ground.	More than 95% live (non-dormant) leaf canopy. Remaining is either dead standing material, or bare ground.	
<b>Plant Diversity by Dry Weight</b> <small>(*See footnote at bottom of page)</small>	<b>Diversity: Very low</b>  <50% desirable species  <b>OR</b> 1 dominant desirable species in 1 functional group  <b>OR</b> No dominant desirable species and all minor species in each functional group totaling <15%	<b>Diversity: Low</b>  2 dominant desirable species in 1 functional group  <b>OR</b> 2 functional groups each represented by minor species totaling ≥15%	<b>Diversity: Moderate</b>  3 dominant desirable species in 1 functional group  <b>OR</b> 2-3 dominant desirable species in 2 functional groups  <b>OR</b> 3 functional groups each represented by minor species totaling ≥15%	<b>Diversity: High</b>  4 dominant desirable species in 2 functional groups  <b>OR</b> 3 dominant desirable species in 3 functional groups  <b>OR</b> 3 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	<b>Diversity: Very high</b>  4 dominant desirable species in 3 functional groups  <b>OR</b> 4 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	
<b>Plant Residue and Litter as Soil Cover</b> ( <i>Pull back canopy</i> )	Bare soil is very easily seen;  There is <20% cover on the soil surface or it is excessive, and slow to break down.	Openings of bare soil can be seen fairly easily;  Soil cover is 21-40%.	Small openings of bare soil can be seen, but minimal;  Soil cover is 41-60%.	No bare soil is easily seen;  Soil cover is 61-80%.	No bare soil is seen;  Soil cover is >80% with good biological activity and decomposition of older residue.	
<b>Grazing Utilization and Severity</b>	Pasture is overgrazed throughout.	Pasture consists primarily of overgrazed and/or refused areas (former dung areas, older plants, undesired plants).	Pastures show uneven grazing throughout with heavier grazing near water or feeding areas, or distinct zone grazing.	Pasture grazed evenly throughout with minimal overgrazing with some under grazed small areas and heavier use near water sources.	Pasture grazed evenly throughout with no overgrazing.	

\*Use NRCS plant list for livestock species. Functional groups are as appropriate for your state (cool-season grasses, legumes, warm-season grasses, non-leguminous forbs). **Any time there are more undesirables than desirables, it will be 1 point. Desirable species must total more than 50% of the total biomass. Dominant species are ≥15%. Functional groups must be ≥15% of stand to be counted.**

Indicator	1 Point	2 Points	3 Points	4 Points	5 Points	Points
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<b>Livestock Concentration Areas</b> (If field <1 acre, see ** footnote)	Livestock concentration areas are within 100 feet of, or are a direct conveyance to surface water, and cover more than 0.1 acre, including trails.	Livestock concentration areas are within 100 feet of, or are a direct conveyance to surface water, and cover less than 0.1 acre, including trails.	Livestock concentration areas are farther than 100 feet from and are not a direct conveyance to surface water, and cover more than 0.1 acre, including trails.	Livestock concentration areas are farther than 100 feet and are not a direct conveyance to surface water, and cover less than 0.1 acre, including trails.	Livestock concentration areas, including trails, not present.	
<b>Soil Compaction and Soil Regenerative Features</b> (**See footnote at bottom of page)	<b>Compaction:</b> Dense or thick platy layer very distinct;	<b>Compaction:</b> Dense or moderate platy layer noticeable;	<b>Compaction:</b> Thin dense or platy layer still present;	<b>Compaction:</b> Minor dense or platy layer; good aggregates common (crumbly soil);	<b>Compaction:</b> No dense or platy layers; crumbly soil throughout;	
	<b>Roots:</b> Dominantly horizontal; most shallow/sparse;	<b>Roots:</b> Numerous horizontal; moderate amount shallow/sparse;	<b>Roots:</b> Some horizontal with increasing downward;	<b>Roots:</b> Few horizontal, more downward through the soil profile;	<b>Roots:</b> Abundant growth primarily downward through the soil profile;	
	<b>Color:</b> Surface horizon same as subsoil;		<b>Color:</b> Surface horizon moderately darker than subsoil;		<b>Color:</b> Surface horizon dramatically darker than subsoil;	
	<b>Soil Life:</b> Few or no signs.	<b>Soil Life:</b> Signs scattered in surface layer.	<b>Soil Life:</b> Signs scattered throughout.	<b>Soil Life:</b> Signs numerous throughout.	<b>Soil Life:</b> Signs abundant throughout.	
<b>Plant Vigor</b>	No plant recovery after grazing/harvest. Pale, yellow or brown, or severe stunting of desirable forage.	Some recovery. Yellowish green forage, or moderately or slight stunting of desirable forage.	Adequate recovery of desirable forage. Yellowish and dark green areas due to manure and urine patches.	Good recovery of desirable forage. Light green and dark green forage present.	Rapid recovery of desirable forage. All healthy green forage.	
<b>Erosion</b>  (Circle all that apply; the overall indicator score will be the lowest rating indicated)	<b>Sheet and Rill:</b> Plant density is insufficient to stop runoff, with poor infiltration. Erosion easily visible throughout pasture;	<b>Sheet and Rill:</b> Plant density slows runoff. Erosion present and easily seen on steeper terrain;	<b>Sheet and Rill:</b> Plant density good and runoff moderate. If present, erosion concentrated on heavily used areas;	<b>Sheet and Rill:</b> Plant density high, runoff low, good infiltration. May have evidence of past erosion if present;	<b>Sheet and Rill:</b> Plant density high, no runoff, good infiltration. No evidence of present or past erosion;	
	<b>Wind:</b> Severe scoured areas and deposition throughout;	<b>Wind:</b> Scoured areas common, deposition effecting plants;	<b>Wind:</b> Occasional scoured areas, litter windrolled;	<b>Wind:</b> Minimal soil exposed, some detached vegetation windrolled, minor plant damage;	<b>Wind:</b> No exposed soil;	
	<b>Streambank and/or Shoreline:</b> Banks bare, major sloughing, no bank vegetation;	<b>Streambank and/or Shoreline:</b> More than half the bank vegetation trampled; sloughing.	<b>Streambank and/or Shoreline:</b> Less than half the bank vegetation trampled; eroding at crossing/entrances.	<b>Streambank and/or Shoreline:</b> Eroding at crossings, entrances; all the bank vegetation is intact and banks are stable.	<b>Streambank and/or Shoreline:</b> Vegetation intact and stable, hardened crossings and alternative water sources used;	
	<b>Gully:</b> Very large mass movement, caving sides.	<b>Gully:</b> Advancing upslope, increasing fingering extensions.	<b>Gully:</b> Not all active but extensions present.	<b>Gully:</b> Stable with vegetative cover.	<b>Gully:</b> None, drainage ways vegetative.	

\*\* If field size is less than 1 ac. Use 10% of field size in place of 0.1 acre. \*\*\*Use a shovel. Root and Compaction subindicators are primary and should be considered first. Soil color and soil life are secondary subindicators which can be considered where applicable.

Overall Pasture Condition Score	Individual Indicator Score	Management Change Suggested
45 to 50	5	No changes in management needed at this time.
35 to 45	4	Minor changes would enhance, do most beneficial first.
25 to 35	3	Improvements would benefit productivity and/or environment.
15 to 25	2	Needs immediate management changes, high return likely.
10 to 15	1	Major effort required in time, management and expense.

Overall Pasture Condition Score =

Comments/Notes:



## CONSERVATION ENHANCEMENT ACTIVITY

### E528S

## Soil Health Improvements on Pasture

### Conservation Practice 528: Prescribed Grazing

**APPLICABLE LAND USE: Pasture**

**RESOURCE CONCERN ADDRESSED: Soil**

**ENHANCEMENT LIFE SPAN: 1 Year**

#### Enhancement Description

Use of soil health assessment to evaluate impact of planned grazing in addressing organic matter depletion, soil organism habitat and aggregate instability. Laboratory soil health tests will be completed in year 1 and year 4 of the contract. Planned modifications to the pasture forages and/or management system will be made to the benchmark grazing system to address concerns from the assessments. During sample collection, Pasture Condition Score (PCS) or Determining Indicators of Pasture Health (DIPH) assessment will be completed for the sample area.

#### Criteria

- Utilizing the benchmark PCS or DIPH, the participant will plan improvements to at least one of the indicators. The benchmark PCS or DIPH will be less than one year old.
- A primary assessment will be completed in Year 1 that includes completing the PCS or DIPH and sampling soil that will be analyzed by a soil health testing laboratory. Follow guidance from Technical Note No. 450-03 to select indicators (soil organic carbon, aggregation, bioavailable nitrogen, respiration, and/or active carbon) and for sampling procedure. Record weather factors and most recent grazing event on the PCS or DIPH. Soil sample collection and PCS or DIPH will be completed on the same day and in the same location.

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- During Year 4, a follow-up assessment will be completed using the same methods that were utilized in year 1. The assessment will be in the same season, comparable conditions and key area as completed in year 1.

### **Documentation and Implementation Requirements**

#### **Participant will:**

- Prior to implementation:
  - Provide NRCS with the benchmark grazing information.
  - Develop a prescribed grazing plan.
  - Select the laboratory soil health test and provider based on your soil health objectives.
- During implementation:
  - Complete PCS or DIPH or work with someone qualified to complete the pasture assessment when soil samples are collected.
  - Collect soil samples and georeferenced sampling locations in years 1 and 4 of the contract and send them to a reputable soil testing lab that completes soil health testing. Year 1 and year 4 soil samples will be tested by the same laboratory.
  - Make changes to the grazing management plan based on results of PCS or DIPH and soil health test to benefit organic matter depletion, soil organism habitat and/or aggregate instability.
- After implementation provide the following items for review by NRCS:
  - PCS or DIPH score sheets with all field notes and locations.
  - Both Soil Health Assessment results to NRCS.
  - Changes made to the grazing management plan for the year.

#### **NRCS will:**

- As needed, provide any technical assistance to participant as requested.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Prescribed Grazing (CPS 528) as it relates to implementing this enhancement.
- Prior to implementation, and as requested from the participant, develop a Prescribed Grazing plan for each year of this enhancement.



- During implementation, assist the producer with locating the key area for the PCS or DIPH and soil samples to be collected.
- During implementation, as requested work with the producer to complete PCS or DIPH and collect the soil samples.
- After implementation, review all PCS or DIPH and all soil health laboratory testing results.
- After implementation, verify implementation of changes made to the grazing management plan to address organic matter depletion, soil organism habitat and/or aggregate instability and other identified indicators from the PCS or DIPH by reviewing grazing herd in and out records or implementation of additional activities.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

\_\_\_\_\_

Date

## ALABAMA – E528S Supplement- Soil Health Improvements on Pasture

### Requirements:

1. A primary assessment will be completed in Year 1 that includes completing the PCS or DIPH and sampling soil that will be analyzed by a soil health testing laboratory using the “Haney” test or equivalent. One sample should be taken every 20 acres based on past management and soil mapunits. Typical cost per sample is around \$50. Follow guidance from the selected laboratory for the sampling procedure. Samples must be taken in years 1 and 4. The assessment will be completed in the same season under comparable conditions and the same key area as completed in year 1. Planned modifications/improvements to the pasture management system will be made to the benchmark grazing system to address concerns from the assessments.
2. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock should be restricted from sensitive areas.
3. Average annual livestock dry matter needs will be balanced with available forage without deficiency for the yearly summary. The Forage/Animal Balance Worksheet will be completed to document.
4. Livestock will be rotated between at least 3 pastures in a particular functional-group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Starting and ending grazing periods will meet the guidelines in the table below. Pastures will be sized and stocked to facilitate meeting the requirements for grazing heights and resting periods. It is anticipated that with a three-pasture rotation that each pasture would rest about 66 percent of the grazing cycle. Additional pastures are preferred and will enable more forage rest.
5. A contingency plan will be developed denoting the use of sacrifice areas for pasture management during drought or other weather-related events. These areas will be labeled on the conservation plan map.
6. A monitoring site will be selected in each forage type or forage mixture to be evaluated with the Pasture Condition Scoring (PCS) tool **quarterly** (typically, March or April, June or July, September or October, December or January). Sites should be reflective of average conditions of the pasture and labeled on the plan map. Photographs are required at the time of monitoring. The PCS should note whether forages are being actively grazed or in a rest period.
7. Perform a routine soil test in the years that a soil health (Haney) test is not utilized for each field with different soils and/or management and apply lime and fertilizer according to soil test results. If manure or by-products are applied, follow Phosphorus Index and Nitrogen Leaching Index limitations according to the Nutrient Management Standard (590).
8. Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Records should be submitted quarterly along with the Pasture Condition Score.

Grazing will be managed according to the Prescribed Grazing (528) Standard.

The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table). Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.



**FORAGE GUIDELINES FOR PRESCRIBED GRAZING SYSTEMS**

<b>Common Forages</b>	<b>Begin Grazing (in)</b>	<b>End Grazing (in)</b>	<b>Usual days of Rest</b>
Alfalfa grazing types	10	4	35 - 40
Bahiagrass	6	2	10 - 20
Bermudagrass common	5	2	7 - 10
Bermudagrass hybrid	6	3	7 - 10
Big Bluestem	18	10	30 - 45
Dallisgrass	6	3	7 - 15
Eastern Gamagrass	15	8	30 - 45
Tall Fescue	6	3	15 - 30
Indiangrass	12	6	30 - 40
Orchardgrass	8	3	15 - 30
Switchgrass	18	10	30 - 45

Describe changes made to the grazing management plan based on results of PCS or DIPH and soil health test to benefit organic matter depletion, soil organism habitat and/or aggregate instability:

Year 2	
Year 3	
Year 4	
Year 5	

## Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

Pasture ID		Pasture acres		Forage type			
Soil test date		Lime/ Fertilizer rate		Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)	
Type	Number						

## Pasture Condition Score Sheet

Operator:				Date:		
Evaluator:				Pasture ID:		
Soil(s), ESD(s) and or FSG(s):				Livestock type:		
Current Season's Precipitation (check one)		Above Normal ◦	Normal ◦	Below Normal ◦		
Seasonal Temperature Trend (check one)		Above Normal ◦	Normal ◦	Below Normal ◦		
Evaluate the site and rate each indicator based upon your observations. Scores for each indicator may range from 1 to 5. Sum the indicator scores to determine overall pasture condition score.						<b>Score</b>
Indicator	1 Point	2 Points	3 Points	4 Points	5 Points	Points
<b>Percent Desirable Plants*</b> (Dry Weight; for Livestock Type)	Desirable species <20% of stand.	Desirable species 20 – 40% of stand.	Desirable species 41 – 60% of stand.	Desirable species 61 – 80% of stand.	Desirable species exceed 80% of stand.	
<b>Percent Legume by Dry Weight</b>	<5% <b>OR</b> >50% bloating legumes.	5-10% legumes <b>OR</b> >40% bloating legume.	11-20% legumes.	21-30% legumes.	31-40% legumes. No grass loss; grass may be increasing.	
<b>Live (includes dormant) Plant Cover</b>	Less than 40% is live leaf canopy. Remaining is either dead standing material, or bare ground.	40-65% is live leaf canopy. Remaining is either dead standing material, or bare ground.	66-80% live leaf canopy. Remaining is either dead standing material, or bare ground.	81-95% live leaf canopy. Remaining is either dead standing material, or bare ground.	More than 95% live (non-dormant) leaf canopy. Remaining is either dead standing material, or bare ground.	
<b>Plant Diversity by Dry Weight</b> (*See footnote at bottom of page)	<b>Diversity:</b> Very low	<b>Diversity:</b> Low	<b>Diversity:</b> Moderate	<b>Diversity:</b> High	<b>Diversity:</b> Very high	
	<50% desirable species <b>OR</b> 1 dominant desirable species in 1 functional group <b>OR</b> No dominant desirable species and all minor species in each functional group totaling <15%	2 dominant desirable species in 1 functional group <b>OR</b> 2 functional groups each represented by minor species totaling ≥15%	3 dominant desirable species in 1 functional group <b>OR</b> 2-3 dominant desirable species in 2 functional groups <b>OR</b> 3 functional groups each represented by minor species totaling ≥15%	4 dominant desirable species in 2 functional groups <b>OR</b> 3 dominant desirable species in 3 functional groups <b>OR</b> 3 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	4 dominant desirable species in 3 functional groups <b>OR</b> 4 dominant desirable species in 2 functional groups <b>AND</b> 1 additional functional group represented by minor species totaling ≥15%	
<b>Plant Residue and Litter as Soil Cover</b> (Pull back canopy)	Bare soil is very easily seen;	Openings of bare soil can be seen fairly easily;	Small openings of bare soil can be seen, but minimal;	No bare soil is easily seen;	No bare soil is seen;	
	There is <20% cover on the soil surface or it is excessive, and slow to break down.	Soil cover is 21-40%.	Soil cover is 41-60%.	Soil cover is 61-80%.	Soil cover is >80% with good biological activity and decomposition of older residue.	
<b>Grazing Utilization and Severity</b>	Pasture is overgrazed throughout.	Pasture consists primarily of overgrazed and/or refused areas (former dung areas, older plants, undesired plants).	Pastures show uneven grazing throughout with heavier grazing near water or feeding areas, or distinct zone grazing.	Pasture grazed evenly throughout with minimal overgrazing with some under grazed small areas and heavier use near water sources.	Pasture grazed evenly throughout with no overgrazing.	

\*Use NRCS plant list for livestock species. Functional groups are as appropriate for your state (cool-season grasses, legumes, warm-season grasses, non-leguminous forbs). **Any time there are more undesirables than desirables, it will be 1 point. Desirable species must total more than 50% of the total biomass. Dominant species are ≥15%. Functional groups must be ≥15% of stand to be counted.**

Indicator	1 Point	2 Points	3 Points	4 Points	5 Points	Points
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<b>Livestock Concentration Areas</b> (If field <1 acre, see ** footnote)	Livestock concentration areas are within 100 feet of, or are a direct conveyance to surface water, and cover more than 0.1 acre, including trails.	Livestock concentration areas are within 100 feet of, or are a direct conveyance to surface water, and cover less than 0.1 acre, including trails.	Livestock concentration areas are farther than 100 feet from and are not a direct conveyance to surface water, and cover more than 0.1 acre, including trails.	Livestock concentration areas are farther than 100 feet and are not a direct conveyance to surface water, and cover less than 0.1 acre, including trails.	Livestock concentration areas, including trails, not present.	
<b>Soil Compaction and Soil Regenerative Features</b> (**See footnote at bottom of page)	<b>Compaction:</b> Dense or thick platy layer very distinct;	<b>Compaction:</b> Dense or moderate platy layer noticeable;	<b>Compaction:</b> Thin dense or platy layer still present;	<b>Compaction:</b> Minor dense or platy layer; good aggregates common (crumbly soil);	<b>Compaction:</b> No dense or platy layers; crumbly soil throughout;	
	<b>Roots:</b> Dominantly horizontal; most shallow/sparse;	<b>Roots:</b> Numerous horizontal; moderate amount shallow/sparse;	<b>Roots:</b> Some horizontal with increasing downward;	<b>Roots:</b> Few horizontal, more downward through the soil profile;	<b>Roots:</b> Abundant growth primarily downward through the soil profile;	
	<b>Color:</b> Surface horizon same as subsoil;		<b>Color:</b> Surface horizon moderately darker than subsoil;		<b>Color:</b> Surface horizon dramatically darker than subsoil;	
	<b>Soil Life:</b> Few or no signs.	<b>Soil Life:</b> Signs scattered in surface layer.	<b>Soil Life:</b> Signs scattered throughout.	<b>Soil Life:</b> Signs numerous throughout.	<b>Soil Life:</b> Signs abundant throughout.	
<b>Plant Vigor</b>	No plant recovery after grazing/harvest. Pale, yellow or brown, or severe stunting of desirable forage.	Some recovery. Yellowish green forage, or moderately or slight stunting of desirable forage.	Adequate recovery of desirable forage. Yellowish and dark green areas due to manure and urine patches.	Good recovery of desirable forage. Light green and dark green forage present.	Rapid recovery of desirable forage. All healthy green forage.	
<b>Erosion</b>  (Circle all that apply; the overall indicator score will be the lowest rating indicated)	<b>Sheet and Rill:</b> Plant density is insufficient to stop runoff, with poor infiltration. Erosion easily visible throughout pasture;	<b>Sheet and Rill:</b> Plant density slows runoff. Erosion present and easily seen on steeper terrain;	<b>Sheet and Rill:</b> Plant density good and runoff moderate. If present, erosion concentrated on heavily used areas;	<b>Sheet and Rill:</b> Plant density high, runoff low, good infiltration. May have evidence of past erosion if present;	<b>Sheet and Rill:</b> Plant density high, no runoff, good infiltration. No evidence of present or past erosion;	
	<b>Wind:</b> Severe scoured areas and deposition throughout;	<b>Wind:</b> Scoured areas common, deposition effecting plants;	<b>Wind:</b> Occasional scoured areas, litter windrolled;	<b>Wind:</b> Minimal soil exposed, some detached vegetation windrolled, minor plant damage;	<b>Wind:</b> No exposed soil;	
	<b>Streambank and/or Shoreline:</b> Banks bare, major sloughing, no bank vegetation;	<b>Streambank and/or Shoreline:</b> More than half the bank vegetation trampled; sloughing.	<b>Streambank and/or Shoreline:</b> Less than half the bank vegetation trampled; eroding at crossing/entrances.	<b>Streambank and/or Shoreline:</b> Eroding at crossings, entrances; all the bank vegetation is intact and banks are stable.	<b>Streambank and/or Shoreline:</b> Vegetation intact and stable, hardened crossings and alternative water sources used;	
	<b>Gully:</b> Very large mass movement, caving sides.	<b>Gully:</b> Advancing upslope, increasing fingering extensions.	<b>Gully:</b> Not all active but extensions present.	<b>Gully:</b> Stable with vegetative cover.	<b>Gully:</b> None, drainage ways vegetative.	

\*\* If field size is less than 1 ac. Use 10% of field size in place of 0.1 acre. \*\*\*Use a shovel. Root and Compaction subindicators are primary and should be considered first. Soil color and soil life are secondary subindicators which can be considered where applicable.

Overall Pasture Condition Score	Individual Indicator Score	Management Change Suggested
45 to 50	5	No changes in management needed at this time.
35 to 45	4	Minor changes would enhance, do most beneficial first.
25 to 35	3	Improvements would benefit productivity and/or environment.
15 to 25	2	Needs immediate management changes, high return likely.
10 to 15	1	Major effort required in time, management and expense.

Overall Pasture Condition Score =

Comments/Notes:



## CONSERVATION ENHANCEMENT ACTIVITY

### E578A

# CONSERVATION STEWARDSHIP PROGRAM

## Stream crossing elimination

### Conservation Practice 578: Stream Crossing

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

**RESOURCE CONCERN: Animals**

**PRACTICE LIFE SPAN: 10 years**

### Enhancement Description

Existing stream crossings on an operation are consolidated into fewer crossings in order to reduce impacts to stream habitat.

### Criteria

- Minimize the number of stream crossings through evaluation of alternative trail or travel-way locations. Assess land user operations to consolidate and reduce the number of crossings in order to minimize habitat fragmentation and to minimize barriers to aquatic organism movement.
- Evaluate proposed crossing removal sites for variations in stage and discharge, tidal influence, hydraulics, fluvial geomorphic impacts, sediment transport and flow continuity, groundwater conditions, and movement of woody and organic material. Assess the effects of removal upon the channel with respect to local site conditions and stream geomorphology, to the extent possible.
- Road crossing removal can affect wetlands, flooding potential, existing infrastructure, and social and cultural practices and resources. Evaluate and address the full range of impacts when planning or designing removal projects.
- Replacing or removing an existing instream structure may trigger channel adjustments upstream and/or downstream of the crossing. Mitigate undesirable channel plan or profile shifts resulting from the removal of crossing.



## CONSERVATION STEWARDSHIP PROGRAM

- Return the stream to a condition to provide passage for as many different aquatic species and age classes as possible.
- Incorporate natural streambed substrates throughout the removed crossing length. Natural streambeds provide numerous passage and habitat benefits to many life stage requirements for fish and other aquatic organisms.
- Retain as much riparian and streambank vegetation as possible during crossing removal to maintain shade, riparian continuity, and sources of nutrient and structural inputs for aquatic ecosystems. Plant all areas to be revegetated as soon as practical after crossing structure removal.
- Where appropriate, consider removing associated access roads or trails and restoring native vegetation representative of the site.



## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

Participant will:

- Prior to implementation, develop a written plan detailing proposed stream crossing removal and associated actions using Conservation Practice Standards Stream Crossing (Code 578), Aquatic Organism Passage (Code 396), and Streambank and Shoreline Protection (Code 580). (NRCS will provide technical assistance, as needed.)
- Prior to implementation, obtain all necessary Clean Water Act, Section 404 permits, and other federal, state or local permits, as required.
- During implementation, use erosion control methods based upon specifications developed for the site.
- Where necessary, prior to crossing structure removal, remove upstream accumulation of sediment from behind the structure.
- Remove the structure (culvert, bridge) and associated embankment materials as much as possible from the bank with as little encroachment into the stream as possible.
- Where necessary, replace natural streambed rock, cobble, and gravel throughout the removed crossing length.
- After structure removal, blend the stream bank at the former crossing into existing site topography. Use streambank soil revegetation and stabilization measures that are appropriate to maintain bank stability and prevent erosion.
- Where appropriate, remove crossing-associated access roads or trails and restore native vegetation representative of the site.
- During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- After implementation, conduct inspections after high flows and undertake prompt actions if there is excessive streambank or streambed instability or erosion.

NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement, including NRCS engineering oversight where required.



# CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, provide and explain NRCS Conservation Practice Standards Stream Crossing (Code 578), Aquatic Organism Passage (Code 396), and Streambank and Shoreline Protection (Code 580) as it relates to implementing this enhancement.
- Prior to implementation, ensure that stream will not be actively incising or down cutting after the crossing removal.
- Prior to implementation, ensure that all necessary Clean Water Act, Section 404, and other federal, state, or local permits have been acquired.
- Prior to implementation, as needed, develop a written plan detailing proposed stream crossing removal and associated actions using Conservation Practice Standards Stream Crossing (Code 578), Aquatic Organism Passage (Code 396), and Streambank and Shoreline Protection (Code 580).
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- During implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- After implementation, verify that the stream crossing removal and follow-up channel and streambank actions, and removal of crossing-associated access roads or trails was implemented according to the plan and specifications developed for the site.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



**2022 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

***E578A – Stream Crossing Elimination***

**Conservation Practice 578: Stream Crossing**



**Stream Crossing Elimination**

**Description**

*Existing, improperly installed stream crossings on an operation are removed to consolidate into fewer crossings to reduce impacts to stream habitat.*

**Benefits**

*Culverts and low water crossings are often placed too high, which cause them to create waterfalls on the downstream side. These improperly installed stream crossings act as barriers to movement of aquatic species. Removing these crossings will improve aquatic habitat substantially.*

**Enhancement Criteria and Implementation Requirements**

- Eligible stream crossings are those crossings that have been improperly installed, thereby impeding movement of aquatic species upstream and downstream.
- Remove ALL improperly placed crossings located on the offered tract acres. Assess land user operations to consolidate and reduce the total number of crossings to minimize habitat fragmentation.
- Landowners must have at least one *properly* installed existing crossing on a stream or this enhancement is not eligible on other crossings on that stream. An NRCS engineer will determine if stream crossings are properly installed.
- Landowners with only one improperly installed stream crossing will not be eligible for this enhancement unless there is another route to access the other side of the creek that does not involve crossing the stream.

Alabama Supplemental Guidance for CSP Enhancement

**E578A JOB SHEET**

<i>Task</i>	<i>Date Completed</i>
Written Plan for Removal Signed	
Permits or Other Approvals Necessary for Restoration Obtained	
Stream Crossing Removal(s) Completed	
Streambed returned as close to original condition as possible.	
All crossing related debris removed to location outside of the floodplain.	

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A COMPLETED E578A JOB SHEET
- WRITTEN PLAN FOR REMOVAL (Signed by Landowner)
- MAP OF THE AREA HIGHLIGHTING LOCATION(S) OF THE STREAM CROSSING(S) TO BE REMOVED
- PHOTO DOCUMENTATION OF STREAM CROSSINGS BEFORE AND AFTER REMOVAL

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the practice is completed.

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CSP Participant Name

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Date

April 1, 2021

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

***E578A – Stream Crossing Elimination***

**Conservation Practice 578: Stream Crossing**



**Stream Crossing Elimination**

**Description**

*Existing, improperly installed stream crossings on an operation are removed to consolidate into fewer crossings to reduce impacts to stream habitat.*

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Alabama Supplemental Guidance for CSP Enhancement

**E578A JOB SHEET**

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- PHOTO DOCUMENTATION OF STREAM CROSSINGS BEFORE AND AFTER REMOVAL

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the practice is completed.

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CSP Participant Name

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Date

April 1, 2021



## 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 CONCERN: Water, Air**

**ENHANCEMENT LIFE SPAN: 1 year**

#### Enhancement Description

Nutrient management encompasses managing the amount, source, placement, and timing of the application of plant nutrients and soil amendments. Nutrients are currently being applied on the farm based on the 4R nutrient stewardship principles. Enhanced nutrient use efficiency strategies or technologies are utilized to improve nutrient use efficiency and reduce risk of nutrient losses to surface and groundwater and reduce risks to air quality by reducing emissions of greenhouse gases (GHGs).

The wide variability of soils, rainfall, fertilizer rates, products, placement, and timing will all influence the actual crop yield. Enhanced fertilizer products are not a yield enhancement guarantee. Products that claim yield enhancement benefits may not be applicable to this enhancement.

**Note:** This enhancement applies to commercial fertilizer only. Adding the products listed below are not applicable for manure applications or other non-commercial fertilizer nutrient sources.

#### Criteria

- Documentation of producer’s record of nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.

E590A - Improving nutrient uptake efficiency and reducing risk of nutrient losses	April 2022	Page   1
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# CONSERVATION STEWARDSHIP PROGRAM

- Minimize soil surface disturbance during nutrient placement.

**Select two or more (not already utilized) strategies for nutrient use efficiency to:**

**Strategy 1:** Use Enhanced Efficiency Fertilizer (EEF) which contain nitrification inhibitor products resulting in delayed nitrification processes, by eliminating the bacteria Nitrosomonas in the area where ammonium is to be present.

- Materials must be defined by the Association of American Plant Food Control Officials (AAPFCO) and be accepted for use by the State fertilizer control official, or similar authority, with responsibility for verification of product guarantees, ingredients (by AAPFCO definition) and label claims.
- Application timing, method, N source, soil texture, and tillage regime are all factors that should be evaluated to determine where nitrification inhibitors should be used. Before buying an inhibitor make sure scientific evidence backs up all claims. Producers and/or consultants should be wary of any product that does not have solid scientific data demonstrating that the inhibitor activity matches the advertised benefit.
- EEF products must be recommended by state Land Grant University (LGU) and concurred with by NRCS on all treatment acres to supply at least 50% of the pre-emergent and early post emergent LGU recommended nitrogen budget requirements for the crop(s) grown. Common chemical products used to interrupt the nitrification process include, Dicyandiamide (DCD), and 2-chloro-6 (trichloromethyl) pyridine.

**Strategy 2:** Use Enhanced Efficiency Fertilizer (EEF) products which contain urease inhibitor products to temporarily reduce the activity of the urease enzyme and slow the rate at which urea is hydrolyzed.

- Materials must be defined by the Association of American Plant Food Control Officials (AAPFCO) and be accepted for use by the State fertilizer control official, or similar authority, with responsibility for verification of product guarantees, ingredients (by AAPFCO definition) and label claims.
- Application timing, method, N source, soil texture, and tillage regime are all factors that should be evaluated to determine where urease inhibitors should be used. Before buying an inhibitor make sure scientific evidence backs up all claims. Producers and/or consultants should be wary of any product that does not have solid scientific data demonstrating that the inhibitor activity matches the advertised benefit.
- EEF products must be recommended by state Land Grant University (LGU) and concurred with by NRCS on all treatment acres to supply at least 50% of the pre-emergent and early post emergent LGU recommended nitrogen requirements for the crop(s) grown.



# CONSERVATION STEWARDSHIP PROGRAM

- Common chemical products that are known to affect urease formation are N-(n-butyl) thiophosphoric triamide (NBPT) and ammonium thiosulfate (ATS).

**Strategy 3:** Use slow-release or controlled release formulations of nitrogen fertilizer for at least 50% of the pre-plant and/or post emergent applications.

- Use of slow-release or controlled-release nitrogen fertilizer products to improve nutrient use efficiency.

**Uncoated Nitrogen Fertilizers include:** Ureaformaldehyde (UF) reaction products, Ureaform and Methylene ureas.

**Coated Nitrogen Fertilizers include:** Sulfur-coated fertilizers, Polymer-coated fertilizers and Polymer/sulfur coated fertilizers.

**Strategy 4:** 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.
- The use of PSNT is not recommended for all soil types and field situations. Consult your local state LGU for guidance.

**Strategy 5:** 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.

**Strategy 6:** Split nutrient applications.

- Apply no more than 50% of total crop nitrogen needs within 30 days prior to planting (or in the case of hay or pasture after green up of dormant grasses). Apply the remaining nitrogen after crop emergence (or green up).
- Post emergent nitrogen may be reduced based on crop scouting, in-season soil sampling/analysis, or plant tissue sampling/analysis. Nutrient availability should be timed to crop uptake.

**Strategy 7:** Time nutrient application timing to match nutrient uptake timing.

- Apply nutrients no more than 30 days prior to planting date of annual crops. Nutrient availability should be timed to crop uptake.



# CONSERVATION STEWARDSHIP PROGRAM

**Strategy 8:** Nutrient placement below soil surface.

- Nutrients are injected or incorporated into the soil as soon as possible, no more than 24 hrs. of being applied.

**Strategy 9:** Use EEF technology for phosphorous fertilizer applications.

- EEF products must be recommended by state Land Grant University (LGU) and concurred with by NRCS on all treatment acres to supply at least 50% of the pre-emergent and early post emergent LGU recommended phosphorous requirements for the crop(s) grown.

**Documentation and Implementation Requirements**

**Participant will:**

- Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all applicable NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater, including existing 590A strategies. List EEF strategies or materials that have been implemented:  
\_\_\_\_\_
- Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K).
- Prior to implementation, select two or more new nutrient use efficiency strategies or technologies not already used. **Selections:** \_\_\_\_\_
- During implementation, keep records to document actual nutrient applications (pounds/acre active ingredient, nutrients must include at a minimum N-P-K).
- During implementation, minimize soil surface disturbance during nutrient placement.
- During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- During implementation, additional record keeping requirements for specific strategy or technology:
  - In-season soil nitrate sampling. Records and documentation must include results (including reference strips) and adjustments in nutrient management based on results.





## CONSERVATION STEWARDSHIP PROGRAM

- In-season plant tissue sampling and analysis. Records and documentation must include type of test used (stalk, leaf, chlorophyll, infrared, or other plant tissue), results (including reference strips), and adjustments in nutrient management based on results.
  - Nutrient placement below soil surface. Records and documentation must include method of injection or incorporation time and depth.
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

### 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.



# 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

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** E590A: Improving nutrient uptake efficiency and reducing risk of nutrient losses

**Conservation Practice:** E590A – Nutrient Management

**BRIEF DESCRIPTION OF ENHANCEMENT:** Nutrient use efficiency (NUE) concept involves three major processes in plants: uptake, assimilation, and utilization of nutrients. Enhanced nutrient use efficiency strategies or technologies can improve nutrient uptake efficiency. This enhancement is designed to reduce risk of nutrient losses to surface and groundwater and reduce risks to air quality by reducing emissions of greenhouse gases (GHGs). This enhancement applies to commercial fertilizer only. It is not applicable for manure applications or other non-commercial fertilizer nutrient sources.

**Important considerations:**

- Use the current “Nitrogen Leaching Index for Alabama (Agronomy Technical Note AL-73)”, “Phosphorus Index for Alabama (Agronomy Technical Note AL-72)”, and “RUSLE 2” to assess the risk of nutrient and soil loss.
- Evaluate water quality standards and designated use limitations that exist locally or statewide in managing nutrients to protect the quality of water resources.
- Plan conservation that includes practices and/or management activities that will reduce the risk of nitrogen or phosphorus movement from the field. Planning and application of conservation practices must be coordinated to avoid, control, or trap manure and nutrients before they can leave the field by surface or subsurface drainage. Nutrients must be applied with the right placement, in the right amount, at the right time, and from the right source to minimize nutrient losses to surface and groundwater.
- Select two or more strategies out of nine listed in the enhancement for nutrient use efficiency. Consider the following nutrient use efficiency technologies:
  - a. Incorporation or injection,
  - b. Timing and number of applications
  - c. Coordinate nutrient applications with optimum crop nutrient uptake
  - d. The use of guidance and rate control technology
  - e. Tissue testing, chlorophyll meters, and spectral analysis technologies

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- Provide NRCS with the current and a suggested planned Nutrient Management Plan that includes:
  - A plan map (acres indicated), soil map and map of sensitive areas or topo map,
  - Planned crop or crop rotation,
  - Results of soil test with recommendations,
  - Results of applicable risk assessments,
  - Realistic yield goals for all crops,
  - Recommended nutrient application rates, application time, placement and sources.

## 2022 Alabama Supplemental Guidance for CSP Enhancement

- Notify NRCS of any planned changes to verify the planned system meets the enhancement criteria,
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity

**Table 1.** Site specific information on the 4R's (right rate, right time, right source and right placement) needed to implement nutrient management. Right rate and right time information may be omitted from this table if information is included on the soil test report.

Track/Field	Crop/year(s)	Yield goal	N Index <sup>1/</sup>	Right Rate (lb/ac) <sup>2/</sup>			Right Time <sup>2/</sup>	Right Source <sup>3/</sup>	Right Placement <sup>4/</sup>
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O			
			h						
			h						
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<sup>1/</sup> N index is the nitrogen leaching index. The leaching potential of N is high (h) throughout the state as a result of high average rainfall. As a result all N applications must be within 30 days of planting a crop or within 30 days of an actively growing crop to minimize N leaching, maximize N use efficiency and meet the requirements of the nutrient management standard. For more information on N leaching see Alabama Agronomy Technical Note AI-73, "N Leaching Index for Alabama".

<sup>2/</sup> Right time and right rate information may be included on the attach soil test results and recommendation, if so indicated see soil test in table 1.

<sup>3/</sup> Indicated planned nutrient source, commercial or organic waste (manure/litter). If the source is manure/litter insure that all applications comply with all federal, state and local regulations including but not limited to ADEM requirements and setbacks as indicated on the conservation plan maps.

<sup>4/</sup> Indicated planned nutrient placement to minimized nutrient loss and maximize nutrient use efficiency. For example, broadcast on spreadable area as indicated on conservation plan maps or broadcast N starter, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O and band sidedress N at the planned rate.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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Date

CSP Participant Name



## CONSERVATION ENHANCEMENT ACTIVITY

### E590B

# CONSERVATION STEWARDSHIP PROGRAM

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

### CONSERVATION PRACTICE: 590 - NUTRIENT Management

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

**RESOURCE CONCERN: Water**

**ENHANCEMENT LIFE SPAN: 1 year**

#### Enhancement Description

Precision application technology and techniques are utilized to plan and apply nutrients to improve nutrient use efficiency and reduce risk of nutrient losses.

#### Criteria

- Documentation of producer’s record of nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Minimize soil surface disturbance during fertilizer placement.
- Development of site-specific geo-referenced maps using soils data, current soil test results, and a precision agriculture system recommended by the Land Grant University or industry. Data is used to diagnose low, medium, and high productivity areas (management zones).
- Nutrient rates of application (minimum N-P-K) are planned and applied according to management zone.
- Utilize variable rate technology for nutrient application to reduce nutrient loss risk and improve nutrient use efficiency; variable rate technology may be map-based, sensor-based (crop canopy sensors), or manual.

E590B - Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies	April 2022	Page   1
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# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### Participant will:

- Prior to implementation, provide documentation for review by NRCS showing a record of implementing nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Prior to implementation, develop site-specific maps and use them to develop management zones within the field.
- Prior to implementation, develop and document a planned nutrient budget, yield goal, and applications by management zone (pounds/acre active ingredient nutrients, must include at a minimum N-P-K). Develop planned variable and flat rate application layers (maps and/or tabular statistics).
- During implementation, utilize variable rate technology. Variable rate technology may be map-based, sensor-based (crop canopy sensors), or manual.
- During implementation, keep records to document as applied records of actual variable rate applications (maps and/or tabular statistics).
- During implementation, minimize soil surface disturbance during fertilizer placement.
- During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

### NRCS will:

- As needed, provide technical assistance to meet the criteria of the enhancement.
- Prior to implementation, provide and explain NRCS Conservation Practice Standard Nutrient Management (CPS 590) as it relates to implementing this enhancement.

E590B - Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies	April 2022	Page   2
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# CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, review documentation to verify a record of implementing nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Prior to implementation, verify the development of site-specific maps used to develop management zones within the field.
- Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications by management zone.
- During implementation, evaluate any planned changes to verify the planned system meets the enhancement criteria.
- After implementation, review documentation and records to verify implementation of the enhancement.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E590B:** Reduce risks of nutrient loss to surface water by utilizing precision agriculture technologies

**Conservation Practice:** **E590 – Nutrient Management**

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement is designed to reduce risk of nutrient losses through utilization of precision application technology and techniques to plan and apply nutrients to improve nutrient use efficiency.

**Important considerations:**

- Use application equipment that utilizes rate controllers, GPS guidance, automatic section control or any combination of all 3 to improve application rate and placement of nutrients.
- Use variable-rate nitrogen application based on expected crop yields, soil variability, or chlorophyll concentration.
- Use variable-rate phosphorus, and potassium application rates based on site-specific variability in crop yield, soil characteristics, soil test values, and other soil productivity factors. Develop site-specific yield maps using a yield monitoring system.
- Use the data to further diagnose low and high- yield areas, or zones, and make the necessary management changes.
- See Title 190, Agronomy Technical Note (TN) 190.AGR.3, Precision Nutrient Management Planning.
- Use legume crops and cover crops to provide nitrogen through biological fixation and nutrient recycling. -CPS-7 NRCS, AL 590 February 2022
- When creating a new plan or modifying an existing plan soil test and other needed laboratory analysis should be taken within the past year.
- Use soil tests, plant tissue analyses, and field observations to check for secondary plant nutrient deficiencies or toxicity that may impact plant growth or availability of the primary nutrients.
- Use the adaptive nutrient management learning process to improve nutrient use efficiency on farms as outlined in the NRCS National Nutrient Policy in GM 190, Part 402, Nutrient Management.
- Potassium should not be applied in situations where an excess causes nutrient imbalance in crops or forages. Excess material should be collected and stored or field

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- Provide NRCS with the current and a suggested planned Nutrient Management Plan that includes a site-specific map to develop management zones, 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).
- Results of soil test with recommendations.
- Results of applicable risk assessments, P index, N index
- Recommended nutrient application rates, application time, placement, and sources.



## 2022 Alabama Supplemental Guidance for CSP Enhancement

- Notify NRCS of any planned changes to verify the planned system meets the enhancement criteria,
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

This Nutrient Management Plan Includes:

**Table 1.** Site specific information on the 4R's (right rate, right time, right source and right placement) needed to implement nutrient management. Right rate and right time information may be omitted from this table if information is included on the soil test report.

Track/Field	Crop/year(s)	Yield goal	N Index <sup>1/</sup>	Right Rate (lb/ac) <sup>2/</sup>			Right Time <sup>2/</sup>	Right Source <sup>3/</sup>	Right Placement <sup>4/</sup>
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O			
			h						
			h						
			h						
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			h						
			h						
			h						

<sup>1/</sup> N index is the nitrogen leaching index. The leaching potential of N is high (h) throughout the state as a result of high average rainfall. As a result all N applications must be within 30 days of planting a crop or within 30 days of an actively growing crop to minimize N leaching, maximize N use efficiency and meet the requirements of the nutrient management standard. For more information on N leaching see Alabama Agronomy Technical Note AI-73, "N Leaching Index for Alabama".

<sup>2/</sup> Right time and right rate information may be included on the attach soil test results and recommendation, if so indicated see soil test in table 1.

<sup>3/</sup> Indicated planned nutrient source, commercial or organic waste (manure/litter). If the source is manure/litter insure that all applications comply with all federal, state and local regulations including but not limited to ADEM requirements and setbacks as indicated on the conservation plan maps.

<sup>4/</sup> Indicated planned nutrient placement to minimized nutrient loss and maximize nutrient use efficiency. For example, broadcast on spreadable area as indicated on conservation plan maps or broadcast N starter, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O and band sidedress N at the planned rate.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



## CONSERVATION ENHANCEMENT ACTIVITY

E590D

# CONSERVATION STEWARDSHIP PROGRAM

Reduce risks of nutrient losses to surface and groundwater by increasing setback awareness via precision technology

**CONSERVATION PRACTICE: 590 - Nutrient Management**

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

**RESOURCE CONCERN: Water**

**ENHANCEMENT LIFE SPAN: 1 years**

### Enhancement Description

Utilize precision technology to increase Surface /Groundwater Setbacks & Associated Application Rate Restrictions (SGS&AARR) implementation during nutrient application by providing precise, real-time location information (geo-located) in the field to the equipment operator. While operating nutrient application equipment, the operator’s location is continually updated and displayed on an integrated, in-cab or add-on GPS-enabled device visible to the operator at all times to reduce the risk of nutrient application in setback and/or sensitive areas. This allows the equipment operator to manually turn off or steer equipment to avoid applying nutrients in setback or sensitive areas. Done properly this helps to protect surface and ground water resources.

### Criteria

- Implementation of this enhancement requires the use of components of precision agriculture technologies for nutrient management.
- Prior or current documentation of implementation of a nutrient management meeting all NRCS Conservation Practice (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater
- Documentation that all 590 surface/groundwater setbacks and associated application rate restrictions (SGS&AARR) are geolocated in a file format that is

E590D - Reduce risks of nutrient losses to surface and groundwater by increasing setback awareness via precision technology	September 2022	Page   1
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# CONSERVATION STEWARDSHIP PROGRAM

overlaid on a current air photo and/or field map, visually displayed for the nutrient applicator. SGS&AARR includes, but are not limited to, state specific 590 surface/groundwater setbacks and sensitive areas including soils and bedrock restrictions.

- Photo or written documentation of:
  - field verification of SGS&AARR
  - Creation of updated maps in a format compatible with the system on application equipment, and annual updating if new SGS&AARR are documented
  - Equipment installation and testing to ensure fully functional system
  - Implementation of the system with each nutrient application.
  
- Subject to payment limitations, this enhancement will apply to all cropland acres operated by the producer meeting CSP 590. Documentation and Implementation Requirements

### 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 (CPS590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
  
- Prior to implementation, a registered 590 Technical Service Provider (TSP) will create an electronic file(s) with 590 criteria geo-located, compatible with all nutrient application equipment used on the farm and ensure compatibility with all equipment used. TSP will provide copies, training, and operating instructions to all operators prior to nutrient application.
  
- Prior to implementation, the TSP will quality review all electronic files, and provide documentation for review to NRCS showing the system to be used by the equipment operator and electronic copies of site specific, field verified 590 maps including all SGS&AARR in a format readable by NRCS (KML files, shapefiles, or other mutually agreed upon format) via NRCS State Office designated delivery method.



## CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, existing maps are reviewed, SGS&AARR are geolocated an in-field assessment for previously unmapped SGS&AARR is conducted and all maps updated and approved by a certified 590 TSP to ensure all 590 criteria are documented and accurate.
- Prior to implementation, provide documentation of nutrient application equipment calibration.
- Prior to implementation, provide documentation to NRCS documenting the installation of equipment on tractors/equipment using a dedicated, fuse protected, power source or a factory installed power source, documentation of maps loaded onto devices, and documentation that system is fully functional and operational.

### Prior to initial implementation (one time)

Verification of purchase/usage of tablet/display system with internal/connected GPS receiver	Verification of purchase/usage of tablet/display system with minimum screen brightness of 450 NITS	Verification of installation/usage of tablet/display system with a dedicated, fuse protected, power source or a factory installed power source.

### Prior to initial implementation (one time, or when additional SGS/AARR are documented)

Field	Acres	Verification of current CPS 590 implementation by TSP	Verification of calibration of nutrient application equipment	Verification of TSP creation of electronic maps and equipment compatibility with maps



# CONSERVATION STEWARDSHIP PROGRAM

## Prior to initial implementation (one time, or when additional SGS/AARR are documented)

Field	Acres	Verification that TSP has conducted an in-field assessment, geolocated all SGS&AARR in a compatible format and provided copies to NRCS	Verification of installation and functionality on all nutrient application equipment	Verification that TSP has trained all equipment operators

- During implementation, keep records to document as applied records of nutrient applications (maps, photo documentation and/or tabular statistics).
- During implementation, update all electronic files when additional SGS&AARR are documented. Updated copies must be provided to NRCS annually.
- During implementation, notify NRCS of any planned changes to verify the planned system meets the enhancement criteria.

## Second and subsequent years

Field	Acres	Verification that any additional SGS&AARR have been added maps and all system components updated	Timing of nutrient application (type/date)	Timing of nutrient application (type/date)	Timing of nutrient application (type/date)	NRCS notified of any changes



# CONSERVATION STEWARDSHIP PROGRAM

- After implementation, Participant will provide required documentation to NRCS for review 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, NRCS will verify the TSP is certified for 590 Nutrient Management.
- Prior to implementation, review documentation to verify a record of implementing nutrient management meeting all NRCS Conservation Practice Standard Nutrient Management (CPS 590) general criteria and additional criteria to minimize agricultural nonpoint source pollution of surface and groundwater.
- Prior to implementation, verify the development of site-specific geo-located maps. For each field, all SGS&AARR will be documented by the TSP via geo-location and included in the electronic file. NRCS staff will review to ensure that known site specific soils information and known sensitive area resource concerns are included.
- Prior to implementation, verify the development of a planned nutrient budget, yield goal, and planned nutrient applications by management zone.
- During implementation, evaluate any planned changes to verify the planned system meets the enhancement criteria.
- After implementation, review documentation and records to verify implementation of the enhancement.



# 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

## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E590D:** Reduce risks of nutrient losses to surface and groundwater by increasing setback awareness via precision technology

**Conservation Practice:** **E590** – Nutrient Management

**BRIEF DESCRIPTION OF ENHANCEMENT:** This is to utilize precision technology to increase Surface /Groundwater Setbacks & Associated Application Rate Restrictions (SGS&AARR) implementation during nutrient application. Application setbacks are separation distances between land application sites for animal manures, organic by-products, and areas that are to be protected. Using application setbacks will help minimize the odor and nuisance potential associated with animal manures and other waste.

**Important considerations:**

- Use application equipment that utilizes rate controllers, GPS guidance, automatic section control or any combination of all 3 to improve application rate and placement of nutrients.
- Use variable-rate nitrogen application based on expected crop yields, soil variability.
- Use variable-rate phosphorus, and potassium application rates based on site-specific variability in crop yield, soil characteristics, soil test values, and other soil productivity factors. Develop site-specific yield maps using a yield monitoring system.
- Use the data to further diagnose low and high- yield areas, or zones, and make the necessary management changes.
- See Title 190, Agronomy Technical Note (TN) 190.AGR.3, Precision Nutrient Management Planning.
- Use legume crops and cover crops to provide nitrogen through biological fixation and nutrient recycling. -CPS-7 NRCS, AL 590 February 2022
- When creating a new plan or modifying an existing plan soil test and other needed laboratory analysis should be taken within the past year.
- Use soil tests, plant tissue analyses, and field observations to check for secondary plant nutrient deficiencies or toxicity that may impact plant growth or availability of the primary nutrients.
- Use the adaptive nutrient management learning process to improve nutrient use efficiency on farms as outlined in the NRCS National Nutrient Policy in GM 190, Part 402, Nutrient Management.
- Potassium should not be applied in situations where an excess causes nutrient imbalance in crops or forages. Excess material should be collected and stored or field

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS.**

- Provide NRCS with the current and a suggested planned Nutrient Management Plan that includes A site-specific maps to develop management zones, 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).
- Results of soil test with recommendations.



## 2022 Alabama Supplemental Guidance for CSP Enhancement

- Results of applicable risk assessments, P index (attached if manure is used), N index and soil loss if crop land.
- Recommended nutrient application rates, application time, placement, and sources.
- Notify NRCS of any planned changes to verify the planned system meets the enhancement criteria,
- Provide maps of the area or location(s), digital images/photos of the area and indicate area on map, and dates of completed activity
- After implementation, make documentation and records available for review by NRCS to verify implementation of the enhancement.

This Nutrient Management Plan Includes:

**Table 1.** Site specific information on the 4R's (right rate, right time, right source and right placement) needed to implement nutrient management. Right rate and right time information may be omitted from this table if information is included on the soil test report.

Track/Field	Crop/year(s)	Yield goal	N Index <sup>1/</sup>	Right Rate (lb/ac) <sup>2/</sup>			Right Time <sup>2/</sup>	Right Source <sup>3/</sup>	Right Placement <sup>4/</sup>
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O			
			h						
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<sup>1/</sup> N index is the nitrogen leaching index. The leaching potential of N is high (h) throughout the state as a result of high average rainfall. As a result all N applications must be within 30 days of planting a crop or within 30 days of an actively growing crop to minimize N leaching, maximize N use efficiency and meet the requirements of the nutrient management standard. For more information on N leaching see Alabama Agronomy Technical Note AL-73, "N Leaching Index for Alabama".

<sup>2/</sup> Right time and right rate information may be included on the attach soil test results and recommendation, if so indicated see soil test in table 1.

<sup>3/</sup> Indicated planned nutrient source, commercial or organic waste (manure/litter). If the source is manure/litter insure that all applications comply with all federal, state and local regulations including but not limited to ADEM requirements and setbacks as indicated on the conservation plan maps.

<sup>4/</sup> Indicated planned nutrient placement to minimized nutrient loss and maximize nutrient use efficiency. For example, broadcast on spreadable area as indicated on conservation plan maps or broadcast N starter, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O and band sidedress N at the planned rate.

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



# CONSERVATION STEWARDSHIP PROGRAM

## Reduce risk of pesticides in surface water and air by utilizing IPM PAMS techniques

### Conservation Practice: 595 Integrated Pest Management

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

RESOURCE CONCERN: Water, Air

ENHANCEMENT LIFE SPAN: 1 year

#### Enhancement Description

Utilize integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques to reduce risk of pesticides in water and air. Reduce the potential for delivery of chemicals into water or ozone precursor emissions.

#### Criteria

- Documentation of producer’s record of how integrated pest management is meeting all general criteria within the Integrated Pest Management Conservation Practice Standard (CPS 595).
- Utilize ***at least four additional activities from techniques below***. The four or more activities can come from one or all of the PAMS activities identified below:
  - Prevention activities include cleaning equipment and gear when leaving an infested area, using pest-free seeds and transplants, and irrigation scheduling to limit situations that are conducive to disease development.
    - For pasture, activities could include: longer rotation periods, higher stop grazing heights, identify quarantine or exclusion zones if pests are present, and utilize weed free hay. Utilize forage species or varieties with generic resistance to anticipated insects or diseases.
  - Avoidance activities include maintaining healthy and diverse plant communities, using pest resistant varieties, crop and livestock rotation, and refuge

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# CONSERVATION STEWARDSHIP PROGRAM

management. Maintain populations of beneficial species to limit development of weed and insect infestations.

- For pasture, activities include establishment of trap and/or cover crops to avoid pests’ migration and invasion into healthy pasture lands. Utilize grazing practices that maintain vigorous forage growth that competes with weeds and able to withstand insects or diseases. Consider adding a diversity of forage species to dilute insect host plants and reduce opportunities for plant pest pressure.
- Monitoring activities include scouting for both pests and beneficial organisms, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments. Monitoring may include the use of drones, or other remote sensing tools which can provide color, red, or infrared images to help detect pest issues. Utilize weather models to help predict disease or insect outbreaks.
  - For pasture, use pasture condition score (PCS) and/or determining indicators of pasture health (DIPH) to assess and evaluate effects of invasive pests.
- Suppression activities include judicious use of cultural, mechanical, biological and chemical control methods that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms. Optimizing application timing (plant phenology, weather and soil conditions etc.), using precision application equipment, or substituting lower risk pesticides.
  - For pasture, consider biological control activities, such as livestock grazing for targeted suppression and control of invasive plant species used in conjunction with other pest management activities. Consider utilizing the timing, duration, frequency and intensity of grazing to disrupt insect or disease cycles. Also consider other synthetic or biological agents (other than livestock) to manage weeds, insects and diseases.
  - When addressing air quality, include at least one suppression activity to reduce emissions of ozone precursors, such as choosing low-emission application methods, selecting alternatives or avoiding use of emulsifiable concentrate (EC) formulations, use of precision application, solarization, biofumigants or adding adjuvants. Consider conditions/practices that reduce herbicide volatilization (in areas with low RH and high temps).

E595B – Reduced risk of pesticides in surface water and air by utilizing IPM PAMS techniques	October 2023	Page   2
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# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### **Participant will:**

- Prior to implementation, provide documentation for review showing producer’s record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria.
- During implementation, keep documentation, such as records, plans, receipts, showing the implementation of the activities selected.
- After implementation, make documentation available for review by NRCS to verify implementation of the enhancement.

### **NRCS will:**

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (CPS 595) as it relates to implementing this enhancement.
- As needed, provide technical assistance to the participant as requested.
- After implementation, verify implementation by reviewing records kept during enhancement implementation.

### NRCS Documentation Review:

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Acres Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

E595B – Reduced risk of pesticides in surface water and air by utilizing IPM PAMS techniques	October 2023	Page   3
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## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E595B:** Reduce risk of pesticides in surface water and air by utilizing IPM PAMS techniques

**CONSERVATION PRACTICE:** 595 – Pest Management Conservation System (PMCS)

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement is prepared to reduce risk of pesticides in surface water and air by utilizing Integrated pest management (IPM) prevent, avoidance, monitoring, and suppression (PAMS) techniques.

### IMPORTANT CONSIDERATIONS:

- Use the current version of the pesticide risk assessment tool (Windows Pesticide Screening Tool (WIN- PST)) to evaluate site-specific water quality impacts associated with chosen pesticides. WIN-PST uses U.S. Environmental Protection Agency data for labeled pesticides and USDA Soil Survey, as well as locally observed soil properties to predict pesticide movement through one of three pesticide loss pathways: Leaching, Solution runoff and Soil adsorbed runoff (pesticides adsorbed to soil carried in surface runoff water).
- Determine if any pesticides considered for use in the planned area pose potential impacts to humans or fish, and their associated potential loss pathways. The minimum level of mitigation required for each resource concern is based on the final risk ratings in the “WIN-PST Soil/Pesticide Interaction Hazard Ratings” Table below:

WIN-PST Identified Hazard Rating	Minimum Mitigation Index Score Level Needed
Low or Very Low	None needed
Intermediate	20
High	40
Extra High	60

- Use Agronomy Technical Note 5-Pest Management in the Conservation Planning Process ([OpenNonWebContent.aspx \(usda.gov\)](#)):
  - Table 1-IPM techniques for reducing pesticide environmental risk,
  - Table 2-Conservation practices for reducing pesticide environment risk
- The minimum level of mitigation required for drift is an index score of 20. For Volatile Organic Compound (VOC) emission concerns, apply at least one IPM mitigation technique from the Pesticide Volatilization section of Agronomy Technical Note 5 - Pest Management in the Conservation Planning Process.
- Use IPM guidelines from the Alabama Cooperative Extension System as supplemental information on prevention, avoidance, monitoring, and suppression (PAMS) activities.
- Document pest management activities that meet CPS 395 general criteria including but not limited to:
  - **Prevention activities:** Keeping away potential pests from entering an area or inhibiting their spread to new areas by cleaning equipment, using pest-free certified seed and transplants, eliminating alternative hosts, proper water management, and placing or erecting barriers like fencing or netting.
  - **Avoidance activities:** Utilizing tactics that limit resources and create unfavorable conditions for the present or reoccurring pest organism by rotating crops, selecting

## 2022 Alabama Supplemental Guidance for CSP Enhancement

pest-resistant varieties, altering planting and harvesting dates, and planting right plant in the right place.

- **Monitoring activities.** Watching regularly for the appearance and reappearance of insects, weeds, diseases, and other pests. Identify pests and where potential pests are present, determine the severity of infestations, presence of pesticide resistance in the population, indications of activity or presence of natural enemies and damage to the asset being protected (crop/plants). Combine the two essential stages (monitoring and assessment). **Assess** answers if the pest causing damage and current prevention or avoidance tactics working, and, if there is a need to act.
- **Suppression activities:** Judicious use of cultural practices, physical barriers, biological controls, and pesticide applications. When using *Pesticides*- use judiciously, with proper timing for the best targeted control, and according to all written instructions on the product label. The pesticides must be labeled for use on the intended crop or site.
- Combine tactics from each of the PAMS activities into a single strategy, utilize rotation of pesticide mode of action (MOA) with at least three new or additional activities from the techniques such as:
  - Pre-season strategies,
  - Planting strategies,
  - Growing season strategies and
  - Harvesting strategies to manage pests and to minimize environmental impacts.

### PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS:

- Documentation for E595B review showing record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria.
- Documentation, such as records, plans, receipts, showing the implementation of the activities selected.
- Documentation for review to verify implementation of the enhancement.

THE ATTACHED DOCUMENTS SUPPORT THE FULL IMPLEMENTATION OF THIS CONSERVATION STEWARDSHIP ENHANCEMENT.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



## CONSERVATION ENHANCEMENT ACTIVITY

E595D

# CONSERVATION STEWARDSHIP PROGRAM

### Increase the size requirement of refuges planted to slow pest resistance to Bt crops

**CONSERVATION PRACTICE: 595 - Integrated Pest Management**

**APPLICABLE LAND USE: Crop (Annual & Mixed)**

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 1 year**

#### Enhancement Description

Bacillus thuringiensis (Bt) plant-incorporated protectants are plants that have been genetically altered to produce proteins that are harmful to certain insect pests. Widespread implementation of Bt crops has decreased insecticide use and increased crop yields, but it must be used as part of an integrated pest management (IPM) approach to protect the crop from pest species that are not susceptible to the Bt toxin and to manage pest resistance.

Crop rotation, scouting and resistance management strategies, such as planting and creating refuges of non-Bt crops, are essential when farming Bt crops. Insects have developed resistance to Bt proteins. To mitigate the development of further resistance, growers are required to plant refuges of non-transgenic crops. These refuges produce numbers of susceptible insects that will help sustain populations of non-resistant insects.

The size of refuge requirement depends on the environment, pest, and strain of the crop. The size of refuge is determined by resistance risk and can vary depending on the product. A recent study published in the Journal of Integrated Pest Management revealed, compliance has been a challenge. Non-compliance arises, in part, due to a concern for yield loss and thus profit loss if a non-Bt refuge is planted.

#### Criteria

- This enhancement creates a 125% increase in refuge size by increasing the structured refuge area from 20 to 45% of the total crop acreage in areas with the highest risk of pest

E595D - Increase the size requirement of refuges planted to slow pest resistance to Bt crops	September 2022	Page   1
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resistance to Bt crops. Thus, if a refuge of 20% of the entire crop is required, an additional 25% area of non-Bt crop would be needed to be planted for a total of a 45% refuge area to receive incentivization under this enhancement.

- Additional refuge planted must adhere to the extant terms of registration for Bt crops. (See Fig 1.)

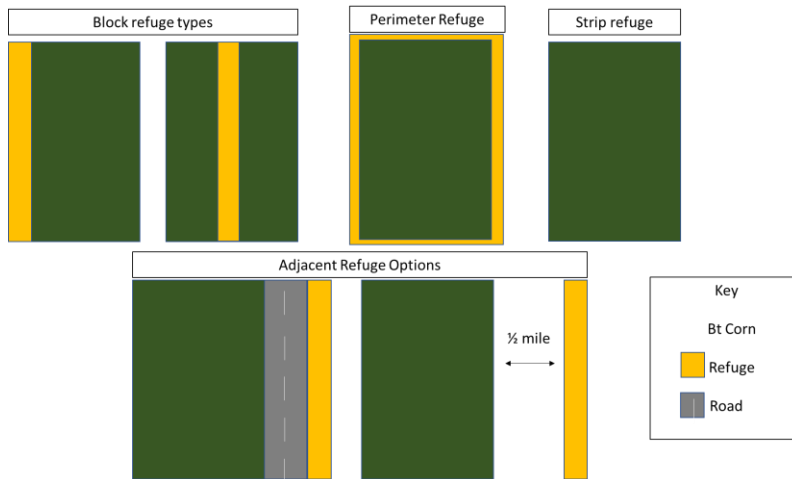


Figure 1. Refuge Planting Design Options

- Refuge designs include separate fields, blocks within fields (e.g., along the edges or headlands), perimeter strips, or in-field strips can be used to achieve the 25% increase.
  - Refuge area must meet the proximity requirements of the Bt crop type (e.g., if a block refuge is planted it must be within a half mile of the Bt field, if perimeter or in-field strips are implemented, the strips must be at least 4 consecutive rows wide, etc.)
  - Required refuge areas must be planted to the same crop as the Bt crop (i.e., a Bt corn field must have a non-Bt corn counterpart). The non-Bt variety must be as similar to the Bt variety as possible using an isoline hybrid if available.
- Growers who receive the incentivization are encouraged to monitor fields for Bt resistance and report unexpected pest damage to Bt crops to the company from which the grower obtained the Bt seed.





**Documentation and Implementation Requirements**

**CONSERVATION STEWARDSHIP PROGRAM**

**Participant will:**

- Prior to implementation, provide documentation for review showing producer’s record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria.
- During implementation, keep documentation, such as records, plans, receipts, showing the implementation of the activities selected including:
  - o Document the Bt crop and the refuge size requirement from the label.
  - o A map showing the non-Bt variety of the crop (refuge area) in relation to the Bt crops, noting the original refuge plus the additional refuge areas.
  - o Photographs of Bt and non-Bt crops planted in the field.
- After implementation, make documentation available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (CPS 595) as it relates to implementing this enhancement.
- As needed, provide technical assistance to the participant as requested.
- After implementation, verify implementation by reviewing records kept during enhancement implementation.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

E595D - Increase the size requirement of refuges planted to slow pest resistance to Bt crops	September 2022	Page   3
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## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E595D:** Increase the size requirement of refuges planted to slow pest resistance to Bt crops

**CONSERVATION PRACTICE:** 595 – Pest Management Conservation System (PMCS)

**BRIEF DESCRIPTION OF ENHANCEMENT:** This enhancement is prepared to slow the development of *Bacillus thuringiensis* (Bt) resistant pests by planting a certain percentage of fields with non-Bt crops – called **refuge crops**. A refuge is intended to provide a source of large numbers of Bt-susceptible insects to counter any resistant insects.

### IMPORTANT CONSIDERATIONS:

- The size of refuge [requirement](#) depends on the environment, pest, and strain of the crop. The size is determined by resistance risk and can vary depending on the product. (For example, refuge requirements for Bt corn are larger in southeastern cotton-growing regions due to a target pest (corn earworm) in this area that feeds on both corn and cotton).
- Utilize the following refuge [approaches](#):
  - **Structured refuges** are a dedicated portion of the farming operation devoted to a non-Bt variety. These refuges are planted as discrete fields (blocks), border rows surrounding a Bt field(s), or rows within the Bt field(s). The key components for structured refuge are its size (as a percentage of the corresponding Bt crop) and proximity to the Bt field(s). Refuges must be planted to the same crop as the Bt crop (i.e., a Bt corn field must have a non-Bt corn counterpart), be close enough to the Bt field so that susceptible insects (from the refuge) and resistant insects (from the Bt fields) can interact and mate.
  - **Seed blends** (“refuge-in-the-bag”) incorporate non-Bt seed (refuge) with Bt seed in the same seed bag. The advantage of seed blends is that growers don’t need to coordinate the planting of a separate refuge – refuge compliance is therefore assured. To date, seed blends have been approved for some Bt corn PIP products.
  - **“Natural refuge”** refers to wild hosts, or other cultivated crops that can serve as a source of susceptible insects. Such a refuge can be effective if the target pest(s) feeds on multiple plant hosts and doesn’t specialize solely on the Bt crop.
- Registered Bt corn and cotton products for commercial use are required to use one of the above refuge approaches. Structured refuges and seed blends have been employed for Bt corn products, while natural refuge has been used for Bt cotton in the southeastern United States.

### PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS:

- A map showing the non-Bt variety of the crop (refuge area) in relation to the Bt crops, noting the original refuge plus the additional refuge areas. Photographs of Bt and non-Bt crops planted in the field.
- Documentation for review showing producer’s record of pest management meeting all CPS 595 general criteria.
- Documentation, such as records, plans, receipts, showing the implementation of the activities
- Documentation to verify implementation of the enhancement.

The following tables list the current refuge requirements for Bt crops (Source: [Insect Resistance Management for Bt Plant-Incorporated Protectants | US EPA](#)).

**2022 Alabama Supplemental Guidance for CSP Enhancement**

**Table 1. Current Refuge Strategies for Bt Corn**

<b>Bt Corn Type</b>	<b>Target Pests</b>	<b>Structured Refuge</b>	<b>Proximity to Bt Fields</b>	<b>Seed Blend</b>
Single toxin	Lepidoptera	Corn Belt: 20% Cotton regions: 50% <sup>1</sup>	<1/2 mile	N/A
Single toxin	Coleoptera	All regions: 20%	Adjacent or within	10%
Single toxin (stacked)	Lepidoptera+ Coleoptera	Corn Belt: combined <sup>1</sup> or separate 20% refuges Cotton regions: separate <sup>2</sup> 20% (CRW) and 50% (Lep) refuges	Combined refuge <sup>2</sup> : adjacent or within Separate refuges <sup>3</sup> : adjacent (CRW) and < 1/2 mile (Lep)	10% (separate refuge for Lepidopteran pests also required)
Pyramid	Lepidoptera	Corn Belt: 5% Cotton regions: 20% <sup>1</sup>	<1/2 mile	5% (separate refuge required in cotton regions)
Pyramid	Coleoptera	All regions: 5%	Adjacent or within	5%
Pyramid (stacked)	Lepidoptera+ Coleoptera	Corn Belt: combined 5% refuge Cotton regions: combined 20% refuge <sup>1</sup>	Areas with Leps: <1/2 mile Areas with CRW only: adjacent or within	5% (separate refuge required in cotton regions)

<sup>1</sup> “Cotton regions” refers to cotton production areas including Alabama.

<sup>2</sup> “Combined refuge” refers to a single refuge meant to address both lepidopteran and coleopteran target pests.

<sup>3</sup> “Separate refuges” refers to two different refuges that are planted for lepidopteran and coleopteran target pests

**Table 2. Current Refuge Strategies for Bt Cotton**

<b>Bt Cotton Type</b>	<b>Target Pests</b>	<b>Geographic Region</b>	<b>Refuge</b>	<b>Refuge Proximity to Bt Fields</b>
Pyramid	Lepidoptera	Southeastern states (AL, AR, FL, GA, KS, KY, LA, MD, MO, MS, NC, OK, SC, TN, VA, parts of TX)	Natural refuge	N/A

<sup>1</sup> A “sprayed” refuge allows grower to treat the refuge with insecticides to manage pest insects.

THE ATTACHED DOCUMENTS SUPPORT THE FULL IMPLEMENTATION OF THIS CONSERVATION STEWARDSHIP ENHANCEMENT.

\_\_\_\_\_  
CSP Participant Name

\_\_\_\_\_  
Date



## CONSERVATION ENHANCEMENT ACTIVITY

E595E

CONSERVATION  
STEWARDSHIP  
PROGRAM

### Eliminate the use of chemical treatments to control pests and to increase the presence of dung beetles

Conservation Practice: Integrated Pest Management - 595

APPLICABLE LAND USE: Pasture; Range

RESOURCE CONCERN: Animals

ENHANCEMENT LIFE SPAN: 1 Year

#### Enhancement Description

Pests and parasites can have a significant impact on the economic viability of livestock operations by affecting the performance and health of animals. The use of broad-spectrum insecticides, pour-ons and avermectins have been shown to have a detrimental effect on dung beetle populations. Having a healthy population of dung beetles facilitates the recycling of nutrients and promotes soil and grassland health. By eliminating the application of broad-spectrum insecticides, pour-ons, and avermectins, including injectable avermectins, for pest control in and on livestock along with rotational grazing and higher stock densities has shown to increase the dung beetle population. Use of natural or alternative methods of pest control over multiple years is encouraged.

#### Criteria

- Determine the chemical treatments that are harmful to the dung beetle population and eliminate use. Rotational grazing management and the use of natural treatments for pest control will be implemented. Follow all land grant university recommendations and methods of evaluations.
- A written grazing plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.

E595E – Eliminate the use of chemical treatments to control pests and to increase the presence of dung beetles	August 2019	Page   1
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- Maintain diversity of pastureland and rangeland plants to optimize delivery of nutrients to the animals by incorporating the intensity, frequency, timing and duration of grazing and/or browsing needed as determined by a planning process that includes:
  - A resource inventory with ecological site description or reference sheet and structural improvements and existing resource conditions,
  - Grazing plan that provides for 45 days or more recovery period between grazing events
  - All potential contingency plans
  
- Supplemental feed and/or minerals will be balanced with the forage consumption to meet the desired nutritional level for the kind and class of grazing and/or browsing livestock.



**Documentation Requirements**

**Participant will:**

- Prior to implementation, provide documentation for review showing producer’s record of integrated pest management meeting Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria.
- During implementation, keep documentation, such as records, plans, receipts, showing the implementation of the activities selected including:
  - Written documentation of what chemical treatment(s) that were replaced by non-harmful alternative method(s).
  - A written plan for matching the forage quantity and quality produced with the grazing and/or browsing demand will be followed.
  - Record of rotational grazing.
- After implementation, make documentation available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (CPS 595) as it relates to implementing this enhancement.
- As needed, provide technical assistance to the participant as requested.
- After implementation, verify implementation by reviewing records kept during enhancement implementation.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Acres Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

E595E – Eliminate the use of chemical treatments to control pests and to increase the presence of dung beetles	August 2019	Page   3
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## ALABAMA – E595E Supplement- Eliminate the use of chemical treatments to control pests and to increase the presence of dung beetles

### Requirements:

1. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock should be restricted from sensitive areas.
2. Average annual livestock dry matter needs will be balanced with available forage without deficiency for the yearly summary. The Forage/Animal Balance Worksheet will be completed to document.
3. Livestock will be rotated between at least 3 pastures in a particular functional-group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. **This enhancement requires 45 days or more recovery period between grazing events.** Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Starting and ending grazing periods will meet the guidelines in the table below. Pastures will be sized and stocked to facilitate meeting the requirements for grazing heights and resting periods. It is anticipated that with a three-pasture rotation that each pasture would rest about 66 percent of the grazing cycle. Additional pastures are preferred and will enable more forage rest.
4. A contingency plan will be developed denoting the use of sacrifice areas for pasture management during drought or other weather-related events. These areas will be labeled on the conservation plan map.
5. Any avermectin type dewormer use must be discontinued.
6. Document which chemical treatments were discontinued or replaced.
7. Perform a soil test annually for each field with different soils and/or management and apply lime and fertilizer according to soil test results. If manure or by-products are applied, follow Phosphorus Index and Nitrogen Leaching Index limitations according to the Nutrient Management Standard (590).
8. Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Records should be submitted quarterly along with the Pasture Condition Score.

Grazing will be managed according to the Prescribed Grazing (528) Standard.

The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table). Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.

### FORAGE GUIDELINES FOR PRESCRIBED GRAZING SYSTEMS

Common Forages	Begin Grazing (in)	End Grazing (in)	Usual days of Rest
Alfalfa grazing types	10	4	35 - 40
Bahiagrass	6	2	10 - 20
Bermudagrass common	5	2	7 - 10
Bermudagrass hybrid	6	3	7 - 10
Big Bluestem	18	10	30 - 45
Dallisgrass	6	3	7 - 15
Eastern Gamagrass	15	8	30 - 45
Tall Fescue	6	3	15 - 30
Indiangrass	12	6	30 - 40
Orchardgrass	8	3	15 - 30
Switchgrass	18	10	30 - 45

## Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

Pasture ID		Pasture acres	Forage type			
Soil test date		Lime/ Fertilizer rate	Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)
Type	Number					

Pasture ID		Pasture acres	Forage type			
Soil test date		Lime/ Fertilizer rate	Lime/ Fertilizer type		Date applied	
Livestock		Date in	Forage height	Date out	Forage height	Notes (fertilizer applied)
Type	Number					





## CONSERVATION ENHANCEMENT ACTIVITY

### E595F

#### Improving soil organism habitat on agricultural land

#### Conservation Practice 595: Pest Management Conservation System

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

**RESOURCE CONCERN ADDRESSED:** Pest Pressure, Soil Organism Habitat Loss or Degradation

**ENHANCEMENT LIFE SPAN:** 1 Year

#### Enhancement Description

To reduce or eliminate the use of seed treatments in corn and soybean cropping systems to promote beneficial organism populations and pest control. Beneficial organisms such as the Carabidae beetle are very important in the population control of common agricultural pests like the grey garden slug. Slugs are a common pest in no-till and heavily cover cropped fields. Slugs are mollusks and can ingest some treatments with no adverse effects. Beneficial organism populations can be negatively impacted when they consume slugs exposed to seed treatments. The reduction or elimination of routine seed treatments in these cash crop systems may increase beneficial insect populations.

#### Criteria

- Producers will reduce or eliminate treatments used in their crop rotations. Treatments on corn or soybean may not be replaced with another routine treatment, such as in-furrow applications.
- If a participant determines after contracting that a targeted seed treatment or other early season treatment is necessary on a contracted soybean or corn field (i.e., within three weeks of planting), the participant will not be penalized, but will forego an incentive payment provided he or she can provide documentation of needed control (e.g. scouting report).

E595F – Improving soil organism habitat on agricultural land	April 2021	Page   1
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- Documentation of producer’s record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria

Documentation and Implementation Requirements

**Participant will:**

- Prior to implementation, provide documentation for review showing producer’s record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria.
- Provide documentation to demonstrate prior seed treatment use.
- Provide any historical pest scouting reports.
- During implementation, keep documentation, such as seed labels, records, plans, receipts, showing the implementation of the activities selected.
- After implementation, make documentation available for review by NRCS to verify implementation of the enhancement.

**NRCS will:**

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Integrated Pest Management (CPS595) as it relates to implementing this enhancement.
- As needed, provide technical assistance to the participant as requested.
- After implementation, verify implementation by reviewing records kept during enhancement implementation.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

E595F – Improving soil organism habitat on agricultural land	April 2021	Page   2
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NRCS Technical Adequacy Signature

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Date



**ALABAMA – E595F Improving soil organism habitat on  
agricultural land**

- Applicable for corn and soybean cropping systems. Seed treatments (such as Cruiser, Poncho, Gaucho, etc.) must be eliminated. In addition, treatments may not be replaced with in-furrow applications.
- Documentation must include records of IPM, including scouting and treatments.
- Seed tags or receipts showing whether seeds are treated is required.



## CONSERVATION ENHANCEMENT ACTIVITY

E595G

# CONSERVATION STEWARDSHIP PROGRAM

### Reduce resistance risk by utilizing PAMS techniques

**CONSERVATION PRACTICE: 595 - Integrated Pest Management**

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

**RESOURCE CONCERN: Plants – Pest Pressure**

**ENHANCEMENT LIFE SPAN: 1 year**

#### Enhancement Description

Utilize integrated pest management (IPM) prevention, avoidance, monitoring, and suppression (PAMS) techniques to reduce pesticide resistance and address plant pest pressure.

#### Criteria

- 1) As a baseline, document the producer’s record of Integrated Pest Management (IPM) activities currently used that meet the Conservation Practice Standard Pest Management Conservation System (CPS 595) general criteria, including but not limited to:
  - Current IPM- fields, tracts, or PLUs and acres under current management.
  - Planned IPM - fields, tracts or PLUs and acres affected.
  - Prevention activities: cleaning equipment and gear when leaving an infested area, using pest-free seeds and transplants, and irrigation scheduling to limit situations that are conducive to disease development.
  - Avoidance activities: maintaining healthy and diverse plant communities, using pest resistant varieties, crop rotation, and refuge management.
  - Monitoring activities: pest scouting, degree-day modeling, and weather forecasting to help target suppression strategies and avoid routine preventative treatments.
  - Suppression activities: judicious use of cultural, mechanical, biological, and chemical control methods that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms. Optimizing application timing, using precision application equipment, or substituting lower risk pesticides.



# CONSERVATION STEWARDSHIP PROGRAM

2) Utilize rotation of pesticide modes of action (MOA) and ***at least three new or additional activities*** from the techniques below that fit within the general PAMS strategies above:

***Pre-season strategies:***

- Acquisition of knowledge and skills to manage pesticide resistance by:
  - Attending educational meetings to obtain the latest information in development of sound pest management programs.
  - OR
  - Promote communication regarding pesticide resistance, by hosting a field day or community meeting to discuss pesticide resistance issues in their community.
- Diversify the current crop rotation to add different crop types to disrupt the host plant/pest cycle and reduce use of the same pesticide MOA season after season.
- Add cover crops to the crop rotation or consider use of nurse crops and intercropping of crops to be competitive with weeds thereby reducing weed pressure in the cash cropland weed seed development or as host crops for beneficial insects
- Use grazing and/or browsing animals when applicable, to reduce weed populations.

***Planting strategies:***

- Plant certified (or tested by a certified lab) weed-free crop, cover crop, or pollinator habitat seed to reduce introduction of new weed pests.
- Use pre-emergence herbicides with soil residual activity, with different mechanisms of activity MOA on target weed species.
- Plant crops with stacked traits to maximize the diversity of available pest management tools a crop with Bt (bacillus thuringiensis) and herbicide resistance traits.

***Growing season strategies:***

- Managing the crop according to recommendations from local extension experts or crop consultants (i.e., Certified Crop Advisors) to promote overall crop vigor, resilience, and competitiveness.
- Scouting prior to pesticide application to correctly identify the target pest and to determine if economic thresholds or estimates of crop damage are met before applying pesticides.
- Time pesticide applications treatment or other PAMS activity when the most susceptible life cycle stage of the target pest(s) is present to maximize the efficacy for the treatment selected.
- Methods of monitoring include use of monitoring traps to indicate adult emergence, real time data feeds from monitoring systems, or using weather or vegetation growth models that predict conditions conducive to pest development.



# CONSERVATION STEWARDSHIP PROGRAM

- Perform in-field follow-up after pesticide application determine and document whether the applied pesticide provided effective control of the target pests.
- Use of cultural, mechanical, or biological pest management strategies such as, tillage, mowing, flaming, roller crimping etc.

### ***Harvesting strategies:***

- Manage the soil seedbank by reducing weed seed inputs through use of harvest weed seed destruction equipment i.e., combine weed seed grinding.
- Manage the field environment (including soils) to lessen the probability of weed establishment, enhance weed seed decay, and promote weed seed predation (e.g., maintaining habitat refuges, delaying postharvest tillage etc.).

### **Documentation and Implementation Requirements**

#### **Participant will:**

- Prior to implementation, provide documentation for review showing producer’s record of integrated pest management meeting all Conservation Practice Standard Integrated Pest Management (CPS 595) general criteria.
- During implementation, keep documentation, such as records, plans, receipts, showing the implementation of the activities selected.
- After implementation, make documentation available for review by NRCS to verify implementation of the enhancement.

#### **NRCS will:**

- Prior to implementation, provide and explain NRCS Conservation Practice Standard Pest Management Conservation System (CPS 595) as it relates to implementing this enhancement.
- Evaluate any new pesticides used with this enhancement with WIN-PST and will plan appropriate mitigation if needed to protect water quality and/or beneficial organism protection.
- As needed, provide technical assistance to the participant as requested.
- After implementation, verify implementation by reviewing records kept during enhancement implementation.



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



## 2022 Alabama Supplemental Guidance for CSP Enhancement

**ENHANCEMENT NUMBER AND TITLE:** **E595G:** Reduce resistance risk by utilizing PAMS techniques

**CONSERVATION PRACTICE:** 595 – Pest Management Conservation System (PMCS)

**BRIEF DESCRIPTION OF ENHANCEMENT:** Reliance on a single pest management tactic increases the chance that a pest population will become resistant to it. This enhancement is to reduce resistance risk by utilizing Prevention, Avoidance, Monitoring and Suppression (PAMS) techniques.

### IMPORTANT CONSIDERATIONS:

1. Document record of current and planned PAMS fields, tracts, or PLUs, and acres under current management, and affected acres.
2. Utilize pest management worksheet (Job Sheet No. AL595) as provided in Tables 1 and 2 below.
3. Document pest management producer's activities that meet CPS 395 general criteria including but not limited to:
  - **Prevention activities:** Keeping away potential pests from entering an area or inhibiting their spread to new areas by cleaning equipment, using pest-free certified seed and transplants, eliminating alternative hosts, proper water management, and placing or erecting barriers like fencing or netting.
  - **Avoidance activities:** Utilizing tactics that limit resources and create unfavorable conditions for the present or reoccurring pest organism by rotating crops, selecting pest-resistant varieties, altering planting and harvesting dates, and planting right plant in the right place.
  - **Monitoring activities.** Watching regularly for the appearance and reappearance of insects, weeds, diseases, and other pests. Identify pests and where potential pests are present, determine the severity of infestations, presence of pesticide resistance in the population, indications of activity or presence of natural enemies and damage to the asset being protected (crop/plants). **Assess** answers if the pest causing damage and current prevention or avoidance tactics working, and, if there is a need to act.
  - **Suppression activities:** Judicious use of cultural practices, physical barriers, biological controls, and pesticide applications.
    - *Cultural Controls*- activities that disrupt the environment of the pest, and/or prevent its movement. Plowing, crop rotation, removal of infected plant material, cleaning of greenhouse and tillage equipment, and effective manure management to deprive pests of a comfortable habitat or prevent their spread.
    - *Physical Barriers*- Mulch to inhibit weed germination beneath desirable plants.
    - *Biological Controls*- conserving or releasing of natural enemies (biological control agents) to prevent the rise of certain pests.
4. *Pesticides*- Use pesticides judiciously, with proper timing for the best targeted control. The pesticides must be labeled for use on intended crop or site. Combine tactics from each of the PAMS activities into a single strategy, utilize rotation of pesticide mode of action (MOA) with at least three new or additional activities from the techniques such as:

## 2022 Alabama Supplemental Guidance for CSP Enhancement

- Pre-season strategies,
  - Planting strategies,
  - Growing season strategies and
  - Harvesting strategies.
5. Use Agronomy Technical Note 5, Pest Management in the Conservation Planning Process to apply appropriate PAMS techniques. When pesticides are part of a PMCS, use the current version of the pesticide risk assessment tool (Windows Pesticide Screening Tool (WIN-PST)). Use IPM guidelines from the Alabama Cooperative Extension System as supplemental information on prevention, avoidance, monitoring, and suppression (PAMS) activities.

Table 1. Pest Management Worksheet

PEST MANAGEMENT WORKSHEET																			
Producer _____				Date _____		Time _____ am/pm													
Field ID _____				County _____		Scout _____													
PLANT POPULATION			Set Counts				Total Plants		Plants/Acre										
Plants per 1/1000 of an acre*			<table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> <td style="width: 12.5%;"></td> </tr> </table>												_____		_____		
<small>Total Plants + # Set x 1,000 =</small>																			
<small>36" row width = 14' 6" length of row, 30" = 17' 5", 20" = 26' 2", 15" = 34' 10", 10" = 52' 3", 7" = 74' 8"</small>																			
INSECTS	Plants/Set	Set Counts						Total	%	# per Plant									
	/set																		
	/set																		
	/set																		
	/set																		
	/set																		
WEEDS		Grasses (Scattered, Slight, Moderate, Severe)						SOIL CONDITIONS											
		_ SC SL MD SV		Avg. height _____		Wet Moist Dry		Loose Light Crust Hard Crust											
		_ SC SL MD SV		Avg. height _____		WEATHER													
Broadleaves		_ SC SL MD SV		Avg. height _____		Cool Warm Hot													
		_ SC SL MD SV		Avg. height _____		Partly Sunny Cloudy Rainy													
		_ SC SL MD SV		Avg. height _____		Calm Light Wind Strong Wind													
DISEASES (Rating 1, 2, 3, 4 or 5)						Map (or attach map)													
_____																			
_____																			
CROP GROWTH STAGE _____																			
Comments:																			
MGT. DECISION BASED ON SCOUTING REPORT:																			

NOTE: COMPLETION OF SHADED AREAS IS OPTIONAL.

**2022 Alabama Supplemental Guidance for CSP Enhancement**

Table 2. Pesticide Data Collection Sheet

Crop	Target Pest	Product Name or Active Ingredient (AI)	% AI	Broadcast or Banded	Application: Surface, Foliar, or Soil Incorporated	Rate Used (Note if Reduced Spray Technology Used)

**PROVIDE REQUIRED DOCUMENTS AND IMPLEMENTATION REQUIREMENTS**

Provide documentation for review (prior to, during and after implementation) showing producer’s record of pest management meeting all Conservation Practice Standard Pest Management Conservation System (CPS 595) general criteria.

**THE ATTACHED DOCUMENTS SUPPORT THE FULL IMPLEMENTATION OF THIS CONSERVATION STEWARDSHIP ENHANCEMENT.**

\_\_\_\_\_

CSP Participant Name

\_\_\_\_\_

Date



## CONSERVATION ENHANCEMENT ACTIVITY

E612B

# CONSERVATION STEWARDSHIP PROGRAM

### Planting for carbon sequestration and storage

#### CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest

RESOURCE CONCERN: Air

ENHANCEMENT LIFE SPAN: 15 years

#### Enhancement Description

Plant tree species and/or shrubs to sequester and store carbon. Forest stands will be managed for longer rotations and/or enhanced composition diversity to improve carbon storage.

#### Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species will be selected for their rate of growth, lifespan, historic range, mature size, suitability for retention as wildlife or legacy species, and/or suitability for use in long-lived sustainable wood products as well as their adaptability to current and future site conditions, including soil type.
- To support forest-level carbon sequestration and storage, native plant communities, soil organic matter, standing and down woody material should be properly maintained.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.



# CONSERVATION STEWARDSHIP PROGRAM

- Only viable, high-quality, and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Planting must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments to protect establishing trees and shrubs, as necessary.
- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States’ Forestry Best Management Practices for Water Quality.

## Documentation and Implementation Requirements

### Participant will:

- Prior to implementation:
  - provide an updated Forest Management Plan that documents intended objectives for carbon sequestration and storage.
  - select a combination of species with longer life spans that are suitable for their rate of growth, historical range, mature size, suitability for retention as wildlife or legacy species, and/or suitability for use in long-lived sustainable wood products as well as their adaptability to current and future site conditions, including soil type.
  - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)



# CONSERVATION STEWARDSHIP PROGRAM

- During implementation:
  - install and maintain erosion control measures as needed for the site.
  - protect the planting(s) from plant and animal pests and fire.
  - notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting date			
Planting Technique			
Arrangement/Spacing			

**NRCS will:**

- Prior to implementation:
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
  - verify the enhancement is planned for the appropriate land use.
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
  - verify no plants on the Federal or state noxious weeds list are included.
  - NRCS will provide Technical Assistance, as needed, in the following:
    - Selecting a combination of species to meet enhancement criteria.
    - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
    - Planning the use of additional erosion control, as needed for the site.
- During implementation:
  - evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation:
  - verify the planned trees and shrub species were established to specifications developed for the site.
  - verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

Alabama Supplemental Guidance for CSP Enhancement  
E612B

**2023 CSP ENHANCEMENTS – GUIDANCE**

**ENHANCEMENT NUMBER AND TITLE:**

**E612B – Planting for carbon sequestration and storage**

**Conservation Practice 612: Tree/shrub Establishment**



**Planting for high carbon sequestration rate**  
*Plant tree species to sequester and store carbon. Forest stands will be managed for longer rotations and/or enhanced composition diversity to improve carbon storage.*

**Benefits**  
*Planting trees with a longer life span or improved genetics with a relatively fast growth will contribute to the long-term storage of atmospheric carbon. This*

*activity will also encourage sustainable management of forestlands for production of durable manufactured products.*

**Enhancement Criteria**

- I. Species guidance. This enhancement requires the selection of trees with a relatively fast growth rate, suitability for production of durable manufactured products, and adaptability to site conditions. To ensure that carbon sequestration gains are realized, selected species must have a long life span, a long harvest interval, or be from genetically improved stock.

**For Alabama the following species are allowed for this enhancement:**

Species	Note selected species range and acceptable sites
Genetically Improved Loblolly Pine*	Require MCP (mass control pollinated) or CMP (controlled mass pollinated) or higher technology. MCP/CMP means trees are manually pollinated to ensure top genetics from two known parents. Statewide.
Genetically Improved Slash Pine*	Require MCP (mass control pollinated) or CMP (controlled mass pollinated) or higher technology. MCP/CMP means trees are manually pollinated to ensure top genetics from two known parents. Eligible within natural slash pine range.
Longleaf Pine	Containerized seedlings planted within the longleaf range
American Sycamore	Moist, rich soil on margins of streams or rich bottoms
Sweetgum	Prefers moist rich soils, typically a bottom-land tree
Yellow Poplar	Prefers moist, rich soil along streams and moist slopes
Laurel Oak, Live Oak, Northern Red Oak, Southern Red Oak,	Must be planted in suitable soils and adapted sites, such as: Laurel Oak & Southern Red Oak – Coastal Plain & Piedmont Live Oak – Coastal plains



## Alabama Supplemental Guidance for CSP Enhancement E612B

Scarlet Oak, Shumard Oak, Cherrybark Oak, Swamp Chestnut Oak	Northern Red Oak & Scarlet Oak – Prefers Piedmont & Mountains Swamp Chestnut Oak & Cherrybark Oak – Prefers bottomlands and river terraces
White Oak Mixture	White Oak must not make up more than 50% of the stand. May be planted with any tree on this list, provided the site is suitable.
Bald cypress	Acceptable sites include wet, riverine swamps and floodplains
Black Cherry	Statewide

II. *Pine spacing guidance\**. Pine trees planted for production of wood products and carbon storage will be planted at spacings which allow 600 to 726 trees per acre. Some acceptable spacings include:

$$6' \times 12' = 605$$

$$7' \times 10' = 622$$

$$6' \times 10' = 726$$

\*Please note, if planting containerized loblolly or slash pine, then an allowance for 10% fewer trees per acre can be planned upon landowner request.

*Hardwood spacing guidance.* Hardwood trees planted for production of wood products, carbon storage and wildlife habitat will be planted at spacings which allow between 400 and 726 trees per acre.

TASK	Species	Species	Species
Planting Date			
Planting Technique (hand or machine)			
Arrangement and Spacing			

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT GUIDANCE. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A COMPLETED E612B JOB SHEET (this page of this Guidance Document)
- MAPS OF THE AREA or LOCATION(S) OF THE STANDS
- PHOTO DOCUMENTATION OF ENHANCEMENT
- FOR LOBLOLLY OR SLASH PINE, DOCUMENTATION OF GENETICALLY IMPROVED STOCK

Alabama Supplemental Guidance for CSP Enhancement  
E612B

☐ DATES OF COMPLETED PLANTING

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the practice is completed.

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CSP Participant Name

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Date



## CONSERVATION ENHANCEMENT ACTIVITY

E612C

## CONSERVATION STEWARDSHIP PROGRAM

### Establishing tree/shrub species to restore native plant communities

**CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment**

**APPLICABLE LAND USE: Forest**

**RESOURCE CONCERN: Animals, Plants**

**ENHANCEMENT LIFE SPAN: 15 years**

#### Enhancement Description

Establish trees and/or shrubs to restore elements of plant communities and diversity that have been lost. Restoring stand-level diversity and function improves health and vigor through planting resilient and/or resistant native plant communities. Additional benefits include providing diversity in wildlife habitat and forage.

#### Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species selected for planting will be native to the site and will create a successional state that progresses toward the identified target plant community.
- To enhance native plant diversity, select a minimum of three different species of trees and/or shrubs to be planted. An exception is in situations where a native lost species is being restored to a fully-stocked forest stand. (i.e., American chestnut). Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.

E612C - Establishing tree/shrub species to restore native plant communities	July 2022	Page   1
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# CONSERVATION STEWARDSHIP PROGRAM

- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Planting must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments to protect establishing trees and shrubs, as necessary.
- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.

## Documentation and Implementation Requirements

### Participant will:

- Prior to implementation:
  - provide an updated Forest Management Plan that documents intended objectives for restoring native plant communities.
  - select a combination of at least three native tree/shrub species that will increase plant and stand diversity.

Species	Note selected species characteristic(s)



# CONSERVATION STEWARDSHIP PROGRAM

- During implementation:
  - install and maintain erosion control measures as needed for the site.
  - protect the planting(s) from plant and animal pests and fire.
  - notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

**NRCS will:**

- Prior to implementation:
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (Code 490) as it relates to implementing this enhancement.
  - verify the enhancement is planned for the appropriate land use.
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
  - verify no plants on the Federal or state noxious weeds list are included.
  - NRCS will provide Technical Assistance, as needed, in the following:
    - Selecting a combination of species to meet enhancement criteria.
    - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
    - Planning the use of additional erosion control for the site, as needed.
    - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  
- During implementation:
  - evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.



# CONSERVATION STEWARDSHIP PROGRAM

- After implementation:
  - verify the plantings were protected from plant and animal pests and fire.
  - verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## Alabama Supplemental Guidance for CSP Enhancement

### 2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION

ENHANCEMENT NUMBER AND TITLE:

**E612C – Establishing tree/shrub species to restore native communities**

**Conservation Practice 612: Tree/shrub Establishment**

BRIEF DESCRIPTION OF ENHANCEMENT: Establish trees and/or shrubs to restore elements of plant diversity that have been lost through past diseases or improper management.

Please note, the criteria listed on page 2 of the enhancement stating “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).” **For Alabama the lost species include longleaf pine, shortleaf pine, and white oak, all other species must be approved by the State Staff Forester. Planting spacing recommendations for longleaf pine & shortleaf pine are 7’ x 10’ or 622 trees per acre, white oak is 12’ x 12’ or 302 trees per acre.**

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE TREE PLANTING OCCURED
- LIST ACRES (BY STAND) WHERE TREE PLANTING OCCURED
- COMPLETED Alabama Job Sheet Nos. AL490B, AL612C and AL643 – 5 (found on the eFOTG guide)
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



## CONSERVATION ENHANCEMENT ACTIVITY

E612D

# CONSERVATION STEWARDSHIP PROGRAM

### Adding food-producing trees/shrubs to an agroforestry system

**CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment**

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

**RESOURCE CONCERN: Animals, Plants**

**ENHANCEMENT LIFE SPAN: 15 years**

#### Enhancement Description

Plant food producing trees/shrubs for wildlife or human consumption within an agroforestry system (windbreaks/shelterbelts, alley cropping, forest farming, silvopasture, and/or riparian forest buffer).

#### Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species selected will be able to produce food and/or culinary items to create an edible landscape. See States list for suitable woody plants.
- Apply at least one of the following activities to improve edible food production:
  - Add at least one edible, food producing row to existing linear plantings.
  - Add clusters of food-producing plants to existing plantings, so that food plants occupy at least 10% of the total area established in an agroforestry practice.
  - Add food-producing plants to occupy idle areas of the operation, such as field corners adjacent to existing plantings.
- Plant a variety of tree, shrub, and-or bramble species (3 or more, using native species whenever possible) with varying flowering times to favor pollinator species and to provide an extended time frame for available food.





## CONSERVATION STEWARDSHIP PROGRAM

- Further considerations are visual appeal, proximity to farmsteads, proximity to areas of wildlife use or viewing, or other locations depending on landowner objectives.
- Minimize herbicide use. Use spot weed treatments and avoid spraying when flowers are present.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, livestock, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.



**Documentation and Implementation Requirements**

**CONSERVATION STEWARDSHIP PROGRAM**

**Participant will:**

- Prior to implementation:
  - provide an updated Forest Management Plan that documents intended objectives for adding food-producing trees/shrubs for wildlife or human consumption.
  - prepare the planned acres for trees and shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
  - select the required number and diversity of tree and shrub species (preference for native edible food plants) that will increase food and forage production for wildlife and humans.
  - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

During implementation:

- install and maintain erosion control measures as needed for the site.
- protect the planting(s) from plant and animal pests and fire.
- notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

**NRCS will:**

- Prior to implementation:
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.



# CONSERVATION STEWARDSHIP PROGRAM

- verify the enhancement is planned for the appropriate land use.
- verify no plants on the Federal or state noxious weeds list are included.
- NRCs will provide Technical Assistance, as needed, in the following:
  - Selecting a combination of species to meet enhancement criteria.
  - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
  - Planning the use of additional erosion control for the site, as needed.
  - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  - During implementation, evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.
  - After implementation, verify the plantings were protected from plant and animal pests and fire.
  - After implementation, verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.
- During implementation:
  - evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.
- After implementation:
  - verify the plantings were protected from plant and animal pests and fire.
  - verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

E612D - Adding food-producing trees/shrubs to an agroforestry system	July 2022	Page   4
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# Alabama Supplemental Guidance for CSP Enhancement

## 2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION

### ENHANCEMENT NUMBER AND TITLE:

#### **E612D - Adding food-producing trees and shrubs to existing plantings**

#### **Conservation Practice 612: Tree/shrub Establishment**

**BRIEF DESCRIPTION OF ENHANCEMENT:** Plant food-producing trees and shrubs for wildlife or human consumption within existing windbreaks, alley cropping, multi-story cropping, silvopasture systems, and/or riparian buffers.

#### **Applicable Forest Stand:**

- Trees and shrubs will be planted on selected areas within any land use that contains an agroforestry installation.
- Examples include:
  - Creates soft edge of shrubs or food producing trees.
  - For example, next to riparian forest buffer, outside edge of existing forest next to pasture, or along alley in silvopasture system.

#### **Minimum Specification:**

- A Tree Planting Practice Plan
  - Required necessary site preparation (Practice 490) will be planned to insure survival
  - Species mix appropriate to the site will be planned (consistent to landowner objectives)
- Policy will be followed as with any 612 planned practice
  - Seedlings must meet specification and be planted properly
  - Planting survival of at least 75% (at least 75% of prescribed number meet specification and planted properly)
- Distance between shrub seedlings in the row will be 6 to 8 ft.
- Best if plum can be planted to create thicket (not in linear row) to create cover in addition to food
  - 8 x 8 spacing (680 seedlings per acre)
  - Each thicket should be .1 to .5 acre

## Alabama Supplemental Guidance for CSP Enhancement

- The following list of shrub species are desirable and recommended for the objective. Recommend use five species from the list (Must be at least 3 species). The list is not intended to be all inclusive and is intended for guidance. Other varieties of listed species not on the list will meet the need and may be substituted.
  - Desirable Species:
    - Persimmon, Red Mulberry, Plum (Chickasaw or American are common), Wild Pear (NOT Callery or Bradford) (Callery pear is invasive and Bradford has no fruit), Crabapple (Southern is common but are many varieties), apple, Hazelnut (filbert), Hawthorn (any variety), or Dogwood ( Flowering)
- Written planting plan required (see pg. 4 of the National Enhancement E612D)
- Practice is properly implemented when all site prep and seeding planting is completed according to plan and specification with planting score of at least 75%.

### **Other:**

- All applicable acres for the application must be identified and addressed in the planning process.
- Consider enhancement implemented for all acres in application if minimum specification are met for all applicable acres.

# Alabama Supplemental Guidance for CSP Enhancement

## E612D JOB SHEET

<u>Stand Name or Number</u>	<u>Species (min. of 3)</u>	<u>Note specific species characteristics</u>
	<b>1)</b>	
	<b>2)</b>	
	<b>3)</b>	
	4)	
	5)	
	Planting Date:	
	Planting Technique:	
	Arrangement/Spacing:	

(One table per stand should be developed and submitted as supporting documentation)

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE TREE PLANTING OCCURED
- LIST ACRES (BY STAND) WHERE TREE PLANTING OCCURED
- COMPLETED Alabama Job Sheet Nos. AL490B, AL612C and AL643 – 5 (found on the eFOTG guide)
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

\_\_\_\_\_

CSP Participant Name

\_\_\_\_\_

Date



## CONSERVATION ENHANCEMENT ACTIVITY

E612E

## CONSERVATION STEWARDSHIP PROGRAM

### Cultural plantings

#### CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead

RESOURCE CONCERN: Plants

ENHANCEMENT LIFE SPAN: 15 years

#### Enhancement Description

Planting trees/shrubs that are of cultural significance, such as those species utilized by Tribes in traditional practices, medicinal plants, species used in basket-making, etc. (e.g., paper birch, slippery elm, witch hazel).

#### Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Species will be selected for their cultural importance.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.
- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.



# CONSERVATION STEWARDSHIP PROGRAM

- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States’ Forestry Best Management Practices for Water Quality.

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation:
  - provide an updated Forest Management Plan that documents intended objectives for cultural plantings.
  - prepare the planned acres for trees and/or shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
  - select a combination of tree and shrub species selected for their cultural importance and their adaptability to site conditions.
  - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)

- During implementation:
  - install and maintain erosion control measures for the site, as needed.
  - protect the planting(s) from plant and animal pests and fire.
  - notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.





# CONSERVATION STEWARDSHIP PROGRAM

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

**NRCS will:**

- Prior to implementation:
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
  - verify the enhancement is planned for the appropriate land use.
  - verify no plants on the Federal or state noxious weeds list are included in the planning combination.
  - verify cultural significance and use is documented.
  - NRCS will provide Technical Assistance, as needed, in the following:
    - Selecting a combination of species to meet enhancement criteria.
    - Selecting planting techniques, arrangement and spacing design, and timing appropriate for the site and soil conditions.
    - Planning the use of additional erosion control for the site, as needed.
    - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
  
- During implementation:
  - evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.
  
- After implementation:
  - verify the plantings were protected from plant and animal pests and fire.
  - verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E612E – Cultural Tree/shrub Planting**

**Conservation Practice 612: Tree/shrub Establishment**

BRIEF DESCRIPTION OF ENHANCEMENT Plant trees and shrubs that are of cultural significance. Examples are: Species utilized by Tribes in traditional practices or plants that are known to be important in the cultural heritage of the people of the Southern countryside of the United States over the last 200+ years. Plants such as medicinal plants, species used in basket-making, etc. (e.g., native cane or white oak) or commonly used native or old southern varieties of fruit (southern apples, muscadines, etc).

**Some important things to note:**

- Documentation must be provided that the plants used qualify as cultural plants. For example, new varieties of fruit trees or vines do not qualify; only old varieties.
- Plants used must be on Culturally Significant Plant List OR must be approved by state staff wildlife biologist, forester or cultural resources specialist.
- Plant density will vary greatly depending on species planted. Minimum planting density will be determined by the conservation planner in consultation with NRCS Cultural Resource Specialist and NRCS Forester or Wildlife Biologist.
- This type of planting is generally not done on large acreage blocks.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE PLANTING OCCURED SHOWING SPECIES PLANTED BY LOCATION
- PLANT INVOICE SHOWING SPECIES AND VARIETIES PURCHASED.
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date

## Alabama Supplemental Guidance for CSP Enhancement

- yellowroot *Xanthorhiza simplicissima*
- sassafras *Sassafras albidum*
- flowering dogwood *Cornus florida*
- black raspberry *Rubus occidentalis*
- black walnut *Juglans nigra*
- butternut walnut *Juglans cinerea* (range is generally limited to north Alabama)
- pecan *Carya illinoensis*
- yaupon *Ilex vomitoria*
- southern magnolia *Magnolia grandiflora*
- sweetbay *Magnolia virginiana*
- umbrella-tree *Magnolia tripetala*
- giant cane *Arundinaria gigantea*
- switchcane *Arundinaria tecta*
- pawpaw *Asimina triloba*
- white oak *Quercus alba*
- crabapple *Malus spp*
- old southern apple varieties *Malus spp*
- old southern pear varieties *Pyrus spp* (caution: rootstock can be invasive if allowed to resprout after parent plant dies)
- old southern muscadine/scuppernon varieties *Vitis spp*



## CONSERVATION ENHANCEMENT ACTIVITY

E612G

## CONSERVATION STEWARDSHIP PROGRAM

### Tree/shrub planting for wildlife habitat

#### CONSERVATION PRACTICE: 612 - Tree/Shrub Establishment

APPLICABLE LAND USE: Forest; Associated Ag Land

RESOURCE CONCERN: Animals, Plants

ENHANCEMENT LIFE SPAN: 15 years

#### Enhancement Description

Tree/shrub planting will provide the plant diversity, structure, and composition needed to enhance habitat and forage for identified wildlife species.

#### Criteria

- States will apply criteria from the NRCS National Conservation Practice Standard Tree/Shrub Establishment (Code 612), and any additional criteria as required by the NRCS State Office.
- Select a minimum of five species of trees and shrubs to be planted, with at least one tree species and one shrub species. (i.e., one tree and four shrubs; two trees and three shrubs; three trees and two shrubs; four trees and one shrub).
- Groupings of trees and shrubs will be managed for best growth, visual appeal, proximity to areas of wildlife use.
- Selection of species should also be chosen according to the site's natural disturbance regime. Species should be selected based on traits, successional status, structure, and composition.
- Build forest resilience by favoring existing species that are better adapted to projected future climate conditions, and by enhancing relative compositional and structural diversity.
- Do not plant species on the Federal or State invasive species or noxious weed lists.



# CONSERVATION STEWARDSHIP PROGRAM

- Only viable, high-quality and site-adapted planting stock or seed will be used.
- A precondition for tree/shrub establishment is appropriately prepared sites. Refer to criteria in NRCS CPS Tree/Shrub Site Preparation (Code 490).
- Implementation and timing of planting will be appropriate for the site and ensure successful establishment.
- Plantings must be protected from unacceptable adverse impacts from insects, disease, wildlife, and/or fire. Apply supporting practices and treatments as necessary to protect establishing trees and shrubs.
- Each site will be evaluated to determine if mulching, supplemental water, or other treatments (e.g., tree protection devices, shade cards, weed mats) will be needed to assure adequate survival and growth.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States’ Forestry Best Management Practices for Water Quality.

### Documentation and Implementation Requirements

#### Participant will:

- Prior to implementation:
  - provide an updated Forest Management Plan that documents intended objectives for wildlife habitat.
  - prepare the planned acres for trees and/or shrub establishment. Refer to NRCS Conservation Practice Standard Tree-Shrub Site Preparation (490).
  - select a combination of five trees and shrubs for their importance in providing food for native wildlife, and their adaptability to site conditions.
  - select planting technique, arrangement and spacing design, and timing appropriate for the site conditions.

Species	Note selected species characteristic(s)



# CONSERVATION STEWARDSHIP PROGRAM

- During implementation:
  - install and maintain erosion control measures for the site, as needed.
  - protect the planting(s) from plant and animal pests and fire.
  - notify NRCS in writing of any planned changes to verify changes meet NRCS enhancement criteria.

TASK	Species	Species	Species
Planting Date			
Planting Technique			
Arrangement/Spacing			

**NRCS will:**

- Prior to implementation:
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Site Preparation (CPS 490) as it relates to implementing this enhancement. Verify the enhancement is planned for acres that have been appropriately prepared for tree/shrub establishment.
  - provide and explain NRCS Conservation Practice Standard Tree/Shrub Establishment (Code 612) as it relates to implementing this enhancement.
  - verify the enhancement is planned for the appropriate land use.
  - verify no plants on the Federal or state noxious weeds list are included in the planning combination.
  - NRCS will provide Technical Assistance, as needed, in the following:
    - Selecting a combination of species to meet enhancement criteria.
    - Selecting planting techniques, arrangement and spacing design, and timing appropriate for target native wildlife, the site and soil conditions.
    - Planning the use of additional erosion control for the site, as needed.
    - Preparing specifications for applying this enhancement for each site using approved state implementation requirements, national technical notes, appropriate state technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
- During implementation:
  - evaluate any planned changes to verify they meet the enhancement criteria and were established to specifications developed for the site.



# CONSERVATION STEWARDSHIP PROGRAM

- After implementation:
  - verify the planned trees and shrub species were established to specifications developed for the site.
  - verify the plantings were protected from plant and animal pests and fire.
  - verify all erosion control needed for the site is functioning and is maintained to specifications developed for the site.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E612G –Tree/shrub Planting for Wildlife Habitat**

**Conservation Practice 612: Tree/shrub Establishment**

**BRIEF DESCRIPTION OF ENHANCEMENT:** Tree or shrub planting to enhance habitat for native wildlife. Standard hardwood tree planting procedures will be followed. This includes mechanical and/or chemical site preparation on forested and grassland sites. In addition, soils/site suitability must be confirmed by a forester or other natural resource professional that has experience with hardwood planting.

A minimum of four native tree species and one shrub species will be used; they will be species that provide food and/or cover for identified wildlife species.

**Some important things to note:**

- Ninety percent of the seedlings planted must be trees. At least one species from the white oak group and one species from the red oak group must be planted. White oak or species from the white oak group must comprise at least 50% of the trees planted. The white oak group includes, but is not limited to, the following species: white oak, swamp white oak, swamp chestnut oak, post oak, chinquapin oak, and overcup oak.
- All trees must be native hardwood tree species. The forester that confirms site suitability will also provide a list of recommended species for the site. Species recommendations will often vary even on the same tract due to differences in slope, aspect and soil moisture.
- No more than 33 percent of the total trees planted may be in any one species.
- A maximum of 3 soft mast tree species will be allowed but are not required. Soft mast means species such as black cherry, maple, gum, yellow poplar or other species as approved by NRCS Wildlife Biologist. These species provide soft mast used by many species of wildlife, provide fast growing cover for wildlife and they can serve as “trainer” trees for nearby hard mast species that are planted such as oak. No more than 33% of the total seedlings planted may be soft mast trees. Soft mast “trainer” trees should be planted in solid rows – every third or fourth row to allow them to be removed easily once the primary species reach a developmental stage where added sunlight from “trainer” tree removal would be beneficial.
- A minimum of 302 trees per acre (12’ x 12’) should be planted. For best tree form (training) effects, a density between 8’ x 8’ (680 trees/acre) and 10’ x 10’ (435 trees/acre) is recommended. Landowners will be given flexibility to choose spacing based on their management objectives, as long as the spacing is not lower than the minimum 302 tpa.
- At least 5 percent but no more than 10 percent of the species planted can be shrubs with wildlife value.

## Alabama Supplemental Guidance for CSP Enhancement

- Plant shrubs along the edges of roads, timber stands, streamside management zones, wildlife openings and other areas that have sufficient light. Shrubs can also be planted in open patches left within the timber stand where no trees are planted.
- The following is a list of approved shrubs for purposes of this enhancement: dwarf chinquapin oak, chinquapin, red mulberry, flowering dogwood, crabapple, apple\*, wild plum, eastern red cedar, serviceberry, native blueberry, blueberry\*, elderberry, wax myrtle, mayhaw and other species as approved by the NRCS state forester or wildlife biologist. \*Note -- commercial varieties of apple and blueberry that are suited to soils and climate of the property can compose up to 50% of the shrub plantings but they will NOT be allowed in orchard style block plantings. They must be mixed with other shrub species and planted in areas as described above.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE TREE PLANTING OCCURED SHOWING SPECIES PLANTED BY LOCATION
- SEEDLING INVOICE SHOWING SPECIES AND NUMBERS PURCHASED
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF THE AREA AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E645A**

**CONSERVATION STEWARDSHIP PROGRAM**

**Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat**

**Conservation Practice 645: Upland Wildlife Habitat Management**

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

**RESOURCE CONCERN: Animals**

**PRACTICE LIFE SPAN: 1 Year**

**Enhancement Description**

Reduction of artificial perching sites ,nest sites, food, and water available to subsidized predators in areas where human-subsidized predators are a threat to sensitive wildlife species. Human-subsidized predators may include ravens, crows, magpies, coyotes, foxes, skunks, raccoons, and other species. Activities under this enhancement may include removal of non-native or invasive trees; removal of unused power poles, corrals, windmills, buildings, and other vertical structures; and/or removal or management of watering facilities, dead livestock, road kill, garbage, animal feed, dumps, and other non-natural food sources.

**Criteria**

- Identify the targeted sensitive wildlife species.
- Identify the subsidized predator(s).
- Coordinate planned activities with a NRCS or partner biologist.
  - Coordination with US Fish and Wildlife Service and the State Wildlife Agency may be required.

E645A - Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat	August 2019	Page 1
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## CONSERVATION STEWARDSHIP PROGRAM

- Treat only artificial, human caused attractants.
  - This activity shall not be used to remove or modify natural water sources, natural perching and nesting sites, or natural food sources for native predators.
- Develop an assessment of the predator attractants, including:
  - Each individual subsidy with a point on a map,
  - A description of the subsidy,
  - Effects to non-target wildlife species, especially raptors and other native predators, and
  - Potential effects to all sensitive as well as threatened and endangered (T&E) species.
- Conduct attractant removal activities in a manner to avoid direct mortality and outside of the nesting season.
- Lethal control shall not be performed as a component of this activity.



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements

### **Participant will:**

- Prior to implementation, meet with NRCS to review results of predator attractant assessment conducted by NRCS and to discuss predator attractants to be removed.
- During implementation, maintain a field log to include:
  - Map of the assessed and removed predator attractants with point locations and descriptions of each item.
  - Dates when the attractant was removed.
  - Before and after photographs of each removed attractant.
- After implementation, provide the field log to NRCS for review to verify enhancement was implemented to meet criteria.

### **NRCS will:**

- Prior to implementation, identify targeted sensitive species and conduct an assessment of subsidized predator attractants on site .
- Prior to implementation, provide and explain state NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645) as it relates to implementing this enhancement.
- Prior to implementation, develop technical specifications for attractant removal needed to improve habitat for the targeted sensitive species consistent with NRCS Conservation Practice Standard Upland Wildlife Habitat Management (Code 645).
- Prior to implementation, assess effects on non-target wildlife species and complete any required coordination with US Fish and Wildlife Service and the State Wildlife Agency.
- After implementation, review field log to verify enhancement was implemented to meet criteria.

E645A - Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat	August 2019	Page 3
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**NRCS Documentation Review:**

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

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date



E645A - Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat	August 2019	Page 4
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**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E645A – Reduction of attractants to human-subsidized predators in sensitive wildlife species habitat**

**Conservation Practice 645: Upland Wildlife Habitat Management**

BRIEF DESCRIPTION OF ENHANCEMENT:

Reduction of artificial perching sites available to hawks in areas where these predators are a threat to bobwhite quail. These artificial perching sites cause hawks to be considered human-subsidized predators.

**Some important things to note:**

- **Minimum Required Treatment:** 100% of the number of existing artificial raptor perch sites (those not in use by landowners) must be removed.
- The target sensitive species is bobwhite quail. In order to be eligible for this enhancement, the landowner must be managing for bobwhite quail or doing early successional habitat management.
- This practice is applicable where artificial perching sites are no longer being used for the original intent (abandoned power poles, etc) and could be removed without impacting current farming operations.
- Artificial perching sites could be old power poles, telephone/cable poles, tall fence posts (tall enough to document use by raptors) or other documented human installed perching sites that are no longer in intended use.
- Treatment will consist of removal through bulldozer, track hoe, chainsaw felling or other reasonable methods to remove these artificial perch sites.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- REPRESENTATIVE IMAGES/PHOTOS OF THE PERCH SITES BEFORE AND AFTER REMOVAL AND INDICATE AREA OF EACH ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E645B**

**CONSERVATION STEWARDSHIP PROGRAM**

**Manage existing shrub thickets to provide adequate shelter for wildlife**

**Conservation Practice 645 Upland Wildlife Habitat**

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

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 5 year**

**Enhancement Description**

Existing shrub thickets provide an instant and important cover for wildlife. Various wildlife species may use shrubs as winter/thermal cover, summer shade, roosting, or as escape cover from predators. Proper management ensures that these shrubs will continue to provide the desired benefits for the local wildlife. A combination of herbicide treatments, cutting and trimming branches, and removal of other competing vegetation will occur. An eligible existing shrub thicket needs to have a canopy cover of 750 square feet, with an end goal of expanding to 1500 square feet. Any existing shrub thicket (not hand planted within the last 5 years) are eligible for this enhancement. Shrub thickets found within fence rows may now be very wide, but still meet the 750 square feet, are eligible.

**Criteria**

Multiple activities may need to occur to properly manage existing shrubs. Any activities involving tree removal will be coordinated with a Forester. Options for management of existing shrubs are described below:

- A. Encouraging new growth on existing plants
  - 1. Pruning and cutting back of plants is best done when the shrubs are dormant. Cutting back shrubs close to the ground encourages growth of new stems at ground level, which provides more protection for animals using the interior of the shrub. Leaving

E645B – Manage existing shrub thickets to provide adequate shelter for wildlife	August 2019	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

the cut branches on the ground adjacent to the thicket, will provide cover until new branches grow back .

2. Cutting back dead limbs is best done when the plants are actively growing, in order to observe which branches are alive, and which branches are dead. Leaving the dead branches on the ground and adjacent to the shrub thicket can provide additional cover at ground level.
  3. Before cutting branches and leaving them adjacent to the thicket, prepare the ground by creating bare ground for the branches to lay on.
- B. Creating bare ground for easier access by wildlife and encourage suckering of new growth.
1. Applying herbicide underneath and adjacent to shrub thicket(s) will create bare ground, which encourages suckering of new plant growth by eliminating vegetation and opening the canopy. Also, bare ground will allow smaller wildlife species to move more freely under the shrubs.
  2. Application of herbicide should be timed and applied carefully in order to not harm shrub plants. Pre-emergent or post-emergent herbicides may be desired.
  3. Herbicide usage on adjacent agricultural lands should be applied carefully to prevent drift and harm to shrub thickets.
  4. Utilization of a slow creeping fire through the shrub thickets will have similar effects and stimulate new growth. Some plants may be killed at the ground level, but new branches and stems will be created.
- C. Eliminating predator perches and opening escape paths in and near shrub thickets.
1. All trees found growing within, or close to shrub thickets create predator perches, and eliminates escape routes for bird species which may flush from the shrub thicket.
  2. Any trees found growing within shrub thickets shall be removed. Immediate stump treatment to prevent regrowth may be desired for some species.
  3. Undesirable trees found adjacent to shrubs (within 50 feet) will also be removed. Stump treatment to prevent regrowth may be desired for some species.



## CONSERVATION STEWARDSHIP PROGRAM

4. Hinge-cutting trees with numerous branches adjacent to thickets can provide additional shrubby type cover. Prepare the ground by creating bare ground prior to dropping and leaving trees. Large tall trees with few branches are not desirable for hinge cutting, and should be removed from the site to prevent creating predator habitat.
- D. Additional maintenance activities
1. Exclusion of livestock may be warranted immediately following management activities.
  2. Avoid damage (chemical and mechanical) done by adjacent agricultural practices.



**Documentation and Implementation Requirements**

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

**Participant will:**

- Prior to implementation, provide a map showing the location of proposed shrub thickets to be managed with notes on land use adjacent to proposed areas to discuss with NRCS staff.
- During implementation, follow management guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Cover Upland Wildlife Habitat (Code 645).
- After implementation, provide a list of management and/or maintenance activities carried out to manage the habitat areas and the dates on which those activities occurred.

**NRCS will:**

- Prior to implementation, assess habitat condition using the appropriate state Wildlife Habitat Evaluation Guide (WHEG) to calculate current WHEG score and anticipated WHEG score after implementation of Enhancement. **Benchmark WHEG score = \_\_\_\_\_ Planned Post Implementation WHEG score = \_\_\_\_\_**
- Prior to implementation, identify target wildlife species and appropriate desired conditions for existing shrub thickets for target species. Document on the state approved Wildlife Habitat Management Plan.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).
- After implementation, verify successful completion of management (per criteria above).



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

Date



## Alabama Supplemental Guidance for CSP Enhancement

### **2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E645B – Manage existing shrub thickets to provide adequate shelter for wildlife**

**Conservation Practice 645: Upland Wildlife Habitat Management**

BRIEF DESCRIPTION OF ENHANCEMENT:

Existing shrub thickets provide an 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 shrub thickets will expand and will provide additional cover which will benefit the local wildlife.

**Some important things to note:**

- 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 length and width that totals 750 square feet is eligible, even if a narrow thicket along a fencerow.
- The goal should be to have at least four existing shrub thickets within a ¼ mile stretch of field edge or early successional habitat.
- Use chainsaw felling, mulching or other equipment to remove unwanted trees within the area of intended expansion of shrub thickets. In addition, remove all trees located within the existing shrub thicket. Herbicide treatments will likely be necessary to keep trees from reoccupying the area before shrub thickets can expand to fill the unoccupied space.
- If adjacent brush is small enough, foliar herbicide treatment may be all that is necessary to remove unwanted brush to allow for expansion of shrubs. Be careful not to impact the shrub patch with overspray and to consider the impacts of soil active herbicides (do not spray soil active herbicides close to existing shrubs).
- A very *light* application of fertilizer will boost fruit production, root/rhizome suckering and expansion of shrubs into adjacent areas. Apply fertilizer at the rate of ½ pound of 13-13-13 per 100 square feet (10 foot by 10-foot equivalent). Applications can be made twice per year; once in spring and once in mid-summer. *Fertilizer is often overapplied, which can damage or kill plants. Be sure to spread as evenly as possible and do not apply more than the recommended amount.*

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

MAPS OF THE LOCATION(S) WHERE THIS PRACTICE WAS APPLIED

## Alabama Supplemental Guidance for CSP Enhancement

- REPRESENTATIVE IMAGES/PHOTOS OF SHRUB PATCHES **BEFORE** ENHANCEMENT APPLIED AND INDICATE AREA OF EACH ON MAP
- REPRESENTATIVE IMAGES/PHOTOS OF SHRUB PATCHES **AFTER** ENHANCEMENT APPLIED AND INDICATE AREA OF EACH ON MAP
- DOCUMENT IN WRITING DATES OF COMPLETED ACTIVITY ALONG WITH DESCRIPTION OF ACTIVITIES

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E645C**

**CONSERVATION STEWARDSHIP PROGRAM**

**Edge feathering for wildlife cover**

**Conservation Practice: 645 Upland Wildlife Habitat**

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

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 1 Year**

**Enhancement Description**

Selected trees are cut, and brush clipped along the border between a wooded area and a grassland, cropland, or idle land, creating a dense woody cover of interlocking branches at ground level. The feathered edge will be an average of 30 feet wide and a minimum of 50 feet long, resulting in an area of 1500 square feet. The width of the strip will vary to follow topographic features and to create a wavy border; the design will also consider aesthetics. Vegetative composition and cover will vary within the edge, ranging from areas with no trees and shrubs to areas with scattered trees and extensive shrub cover. The variation in vegetation structure along with variable width of the edge will create feathering. The edge may include shrub plantings for wildlife food and aesthetics.

**Criteria**

- Select an area to edge-feather where many of the existing trees can be cut without damaging the ecological or economic value of the property.
- Design the configuration of the edge to correspond with topographic variation, so that the edge may be wider on ridgetops, narrower in valleys, and discontinuous to allow for forested riparian buffers.
- Treat invasive plant and animal species and noxious weeds if present on the area to be edge feathered. Where possible, control will be limited to that necessary to



## CONSERVATION STEWARDSHIP PROGRAM

control undesirable species while still protecting habitat that benefit native pollinators and other fish and wildlife species that depend on the site for food, cover, and water.

- Limit disturbance during wildlife nesting and rearing seasons.
- Mark trees to retain in the feathered edge, selecting from among mast producing species, wolf trees, trees with cavities and/or loose bark, or other trees with desirable habitat or aesthetical characteristics. Consider the location of retained trees so they blend gradually with the adjacent forest, being taller and more closely spaced on the side toward the forest. Cut all other trees over 12 feet tall in the area to be edge feathered using hand tools such as chainsaws. Woody residue will be left lying in the feathered edge to provide wildlife cover.
- Treat cut stumps of undesirable hardwood trees with an approved herbicide. Leave native shrub species if they are less than 12 feet tall. If they are taller than 12 feet, cut them at ground level but DO NOT treat the shrub stumps.
- Exclude livestock from edge feathered areas. Use prescribed fire to manage and maintain feathered edges in appropriate forest types.
- Inspect edge feathered areas on an annual basis to determine maintenance activities. Treat invasive and/or undesirable plant species and noxious weeds as needed. Add woody debris to the site as the wood decomposes and is worn down.





## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements

#### **Participant will:**

- Prior to implementation, provide a map showing the location and design of proposed edge-feathering.
- Prior to implementation, select a suite of desired wildlife species that benefit from feathered edges, with the aid of NRCS or a biologist.
- Mark trees to be retained in the feathered edge with the assistance of NRCS, or a biologist and/or forester.
- During implementation, follow management guidance provided by NRCS in the state specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).
- During implementation, follow and document progress on the state approved Implementation Requirements sheet.
- Following implementation, provide NRCS with photo documentation.
- Following implementation, inspect edge feathered area on an annual basis and carry out maintenance activities as needed.

#### **NRCS will:**

- Prior to implementation, identify a desired suite of wildlife species and appropriate desired conditions for edge feathered areas. Document on the state approved Implementation Requirement sheets.
- Prior to implementation provide technical assistance on site selection, tree species selection, design, and other specifics.
- Prior to implementation, provide and explain State specifications for NRCS Conservation Practice Standard Upland Wildlife Habitat (Code 645).
- Prior to implementation, provide and explain the state approved Implementation Requirements sheet for this practice.
- After implementation, verify successful completion of management (per criteria above).



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

Date



**2022 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E645C – Edge feathering for wildlife cover**

**Conservation Practice 645: Upland Wildlife Habitat Management**

BRIEF DESCRIPTION OF ENHANCEMENT:

“Soft” field edges are more beneficial to wildlife than abrupt or “hard” field edges. Curved edges are more wildlife friendly than straight edges. This enhancement will create soft, curved field edges with multiple vegetation types to create a feathered edge that will greatly enhance habitat for many species of wildlife.

**Some important things to note:**

- Selected trees are cut within the treatment area. Brush is clipped into the woods along the border between a wooded area and open land. Mark trees to leave within the edge that are most producing or contain cavities that can be used by wildlife. Remove other trees to create a rough edge that is pushed back from the original edge location.
- Use a herbicide on the stumps of trees that are removed to prevent them from resprouting.
- Leave as many native shrubs as possible within the edge.
- Remove any invasive species found within the edge.
- 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 treatment area may include shrub planting if few shrubs are found within the area to be feathered.
- The goal should be to have at least four existing feathered edge patches within a ¼ mile stretch of field edge.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- REPRESENTATIVE IMAGES/PHOTOS OF FEATHERED EDGE **BEFORE** ENHANCEMENT APPLIED AND INDICATE AREA OF EACH ON MAP
- REPRESENTATIVE IMAGES/PHOTOS OF FEATHERED EDGE **AFTER** ENHANCEMENT APPLIED AND INDICATE AREA OF EACH ON MAP
- DOCUMENT IN WRITING DATES OF COMPLETED ACTIVITY ALONG WITH DESCRIPTION OF ACTIVITIES

## Alabama Supplemental Guidance for CSP Enhancement

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

ENHANCEMENT NUMBER AND TITLE:

**E645C – Edge feathering for wildlife cover**

**Conservation Practice 645: Upland Wildlife Habitat Management**

BRIEF DESCRIPTION OF ENHANCEMENT:

“Soft” field edges are more beneficial to wildlife than abrupt or “hard” field edges. Curved edges are more wildlife friendly than straight edges. This enhancement will create soft, curved field edges with multiple vegetation types to create a feathered edge that will greatly enhance habitat for many species of wildlife.

**Some important things to note:**

- Selected trees are cut within the treatment area. Brush is clipped into the woods along the border between a wooded area and open land. Mark trees to leave within the edge that are most producing or contain cavities that can be used by wildlife. Remove other trees to create a rough edge that is pushed back from the original edge location.
- Use a herbicide on the stumps of trees that are removed to prevent them from resprouting.
- Leave as many native shrubs as possible within the edge.
- Remove any invasive species found within the edge.
- 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 treatment area may include shrub planting if few shrubs are found within the area to be feathered.
- The goal should be to have at least four existing feathered edge patches within a ¼ mile stretch of field edge.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- REPRESENTATIVE IMAGES/PHOTOS OF FEATHERED EDGE **BEFORE** ENHANCEMENT APPLIED AND INDICATE AREA OF EACH ON MAP
- REPRESENTATIVE IMAGES/PHOTOS OF FEATHERED EDGE **AFTER** ENHANCEMENT APPLIED AND INDICATE AREA OF EACH ON MAP
- DOCUMENT IN WRITING DATES OF COMPLETED ACTIVITY ALONG WITH DESCRIPTION OF ACTIVITIES

## Alabama Supplemental Guidance for CSP Enhancement

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

---

Date



**CONSERVATION ENHANCEMENT ACTIVITY  
E666F**

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

**Reduce forest stand density to create  
open stand structure**

**Conservation Practice 666: Forest Stand Improvement**

**APPLICABLE LAND USE: Forest**

**RESOURCE CONCERN: Plant, Animal**

**ENHANCEMENT LIFE SPAN: 10 Years**

**Enhancement Description:**

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

**Criteria:**

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

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



## CONSERVATION STEWARDSHIP PROGRAM

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





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

## CONSERVATION STEWARDSHIP PROGRAM





## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements:

#### Participant will:

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

#### NRCS will:

- Prior to Implementation, assist with interpretation and updates to the Forest Management Plan and activities recommended in the acres targeted for management.



# CONSERVATION STEWARDSHIP PROGRAM

- Prior to implementation, provide and explain guidance in the NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) and how it relates to the use of this enhancement.
- Prior to implementation, provide assistance with the development of appropriate state approved NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) Job Sheets and discuss the details with the participant.
- Prior to implementation, discuss the need for managing the understory vegetation along with the overstory. The understory should be managed using prescribed burning, chemical or mechanical treatments. Be sure that there is a prescribed burn plan, chemical recommendations or mechanical treatments following state BMP guidelines in implementing this enhancement.
- Prior to implementation, provide and explain the following NRCS Conservation Practice Standards (CPSs) as they relate to implementing this enhancement.
  - Brush Management (Code 314)
  - Forest Stand Improvement (Code 666)
  - Forest Trails and Landings (Code 655)
  - Herbaceous Weed Control (Code 315)
  - Integrated Pest Management (Code 595)
  - Woody Residue Treatment (Code 384)
  - Prescribed Burning (Code 338)
- During implementation, provide technical assistance as requested by the participant.
- After Implementation, verify the enhancement was completed according to the enhancement criteria and NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) practice specifications.

### NRCS Documentation Review:

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature \_\_\_\_\_ Date \_\_\_\_\_

## Alabama Supplemental Guidance for CSP Enhancement

### 2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION

ENHANCEMENT NUMBER AND TITLE:

**E666F – Reduce forest stand density to create open stand structure**

**BRIEF DESCRIPTION OF ENHANCEMENT:** 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.

(\*in stands other than hardwood)

**E666S JOB SHEET TABLE**

Stand	Acres to be treated	(X) All Recommended Treatments below			
		Mechanical (Commercial thinning or precommercial thinning using mulching, mowing, chainsaws, or small dozers)	Chemical treatment (individual tree or skidder spray)	Herbaceous weed control for undesirable competing vegetation, to favor the development of desirable vegetative communities on the site	Prescribed burning (in pine dominated stands only)

Implementation of these practices will create an open stand and stimulates the growth of desirable 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.

## Alabama Supplemental Guidance for CSP Enhancement

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- Develop or update a forest management plan (FMP) in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Prior to implementing this enhancement, the E666F Job Sheet Table should be completed and submitted to the local NRCS Office. The FMP should have greater detail as to the recommended treatments listed in the Job Sheet Table.
- Maps of the area or location(s) to be treated
- If burning is one of the recommended treatments a completed post-burn evaluation should be submitted, and it should include the burn date(s).
- Photo documentation of the enhancement.

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the second burn is completed.

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CSP Participant Name

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Date



## CONSERVATION ENHANCEMENT ACTIVITY

E666K

## CONSERVATION STEWARDSHIP PROGRAM

### Creating structural diversity with patch openings

**CONSERVATION PRACTICE: 666 - Forest Stand Improvement**

**APPLICABLE LAND USE: Forest; Associated Ag Land; Farmstead**

**RESOURCE CONCERN: Animals, Plants**

**ENHANCEMENT LIFE SPAN: 10 years**

#### Enhancement Description

Forest stand improvement that creates patch openings. Size, shape, location, and arrangement of patches will be based on natural features and emulate patches that would result from natural disturbance regimes of wind or fire, varying geographically by forest type and by tree species desired from natural regeneration. The treatment will create or maintain diversity in stand composition and structure, increase pest resistance, reduce wildfire risk, and enhance wildlife food availability. Openings may provide regeneration sites, restore natural plant communities, and achieve or maintain a desired understory plant community for wildlife habitat.

#### Criteria

- Develop or update a forest management plan in consultation with NRCS personnel and a professional forester to direct the management of the property.
- Apply treatment to one of the following forest stand conditions:
  - Existing stand is already at an “acceptable growing stock” level. For tree species with stocking charts, this is at the B line, the lowest level of a fully stocked stand. Must contain species for regeneration from the NRCS state list of suitable trees. Species on this list have the ability to regenerate from seed, sprouts, or other natural regeneration sources.
  - Dry Western forests that have been thinned in the last 5 years. Patch cutting seeks to restore variable and patchy structural conditions typical of benchmark ecological sites.



## CONSERVATION STEWARDSHIP PROGRAM

- Closed canopy pine plantation monoculture with few native herbaceous or shrub plants in the understory. Select sites with  $\geq 50$  square feet of basal area per acre and pine species included on the NRCS state list of pine species that have the ability to regenerate from seed.
- Create openings of varying sizes. Vary shapes of openings to correspond with land features (slope, aspect, soil moisture), or to utilize sunlight effectively to encourage regeneration within the opening, as needed.
  - The size of patches to be treated for wildlife can vary from .025 to 10 acres, be distributed throughout the forest, and cannot total more than 30% of the acres meeting the “acceptable growing stock” level.
  - Size of patches to be treated for degraded plant condition can vary from .025 to 10 acres, be distributed throughout the forest, and cannot total more than 50 percent of the acres meeting the “acceptable growing stock” level.
- Preferentially locate patch openings in areas that lack crop trees or wildlife trees. In dry western forests, locate patches in areas more open in the past due to higher fire frequency and intensity (on hills and knolls, and west- and south-facing slopes). Locate openings where there is an aggregation of trees that are:
  - At high risk of mortality or failure (unless retained as a wildlife tree)
  - Of low crown vigor
  - Of poor stem form and quality
  - Less-desirable species.
- Trees removed during patch development having marketable value can be sold.
- Where slash and debris will be generated, use NRCS Conservation Practice Standard Woody Residue Treatment (Code 384), to appropriately treat slash and debris, as necessary, to assure that it will not present an unacceptable fire, safety, environmental, or pest hazard. Remaining woody material will be placed so that it does not interfere with the intended purpose or other management activities. Do not burn vegetative residues except where fire hazard or threats from diseases and insects are of concern or when other management objectives are best achieved through burning. When slash and other debris will be burned onsite use NRCS Conservation Practice Standard Prescribed Burning (Code 338).
- Slash and cull trees must be managed if the material interferes with the production of wildlife food. The material may be managed as follows:
  - Windrowing or wildlife piles
  - Chipping or cutting for firewood



## CONSERVATION STEWARDSHIP PROGRAM

- In appropriate stands, prescribed burning may be used.
- Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595) to assist with site-specific strategies for pest prevention, pest avoidance, pest monitoring, and pest suppression. Time tree felling to avoid buildup of insect or disease populations.
- Control measures may be used on undesirable competing vegetation, to favor the development of desirable vegetative communities on the site. Vegetation may be treated by chemical methods such as spraying or single stem treatments, or mechanical methods like a heavy-duty brush cutter or similar equipment. Refer to criteria in NRCS Conservation Practice Standard Integrated Pest Management (Code 595).
- For areas adjacent to patch openings, leave residual trees and shrubs that provide a diversity of wildlife food sources.
- Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions. Protect site resources by selecting the method, felling direction and timing of tree felling, and heavy equipment operation. For temporary access use NRCS Conservation Practice Standard Forest Trails and Landings (Code 655), to protect soil and site resources from vehicle impacts.
- Use NRCS Conservation Practice Standard Access Road (Code 560), for more heavily used roads associated with forest stand improvement activities.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- If management of the remaining forest area (between patch openings) provides a conservation benefit, management can be accomplished at the same time as patch opening creation. Use applicable criteria from NRCS Conservation Practice Standard Forest Stand Improvement (Code 666) when managing the general forest area.





**Documentation and Implementation Requirements**

**CONSERVATION  
STEWARDSHIP  
PROGRAM**

**Participant will:**

- Prior to implementation:
  - work with NRCS or your forester to develop or update a forest management plan which will include management practices to address the documented resource concerns.
  - select areas for patch openings that contain species for regeneration from the NRCS state list of suitable trees that have the ability to regenerate from seed, sprouts, or other natural means. Document that the trees are present and vigorous enough to regenerate.
  - determine the resource concern, size, shape, location, and distribution of openings throughout the forest. In dry western forests, locate patches in areas more open in the past due to higher fire frequency and intensity (on hills and knolls, and west- and south-facing slopes). The size of each opening ranges from 0.25-10 acres, and the total acreage in openings will be less than 30% of eligible forest acres for wildlife openings and less than 50% of eligible forest acres for degraded plant condition based on stocking. Locate openings in areas that lack crop trees or wildlife trees and where there is an aggregation of trees that are:
    - At high risk of mortality or failure
    - Of low crown vigor
    - Of poor stem form or quality
    - Less-desirable species
  
- During implementation:
  - manage slash and cull trees by windrowing, creating wildlife piles, chipping, cutting for firewood, and/or prescribed burning if appropriate.
  - protect the site from plant and animal pests, fire, and adverse impacts to the soil resource.
  - notify NRCS if there are any planned changes, to verify they meet the enhancement criteria.
  
- After implementation:
  - provide NRCS a map showing the location of patches and photos documenting that patch cuts were completed according to specifications.

**NRCS will:**

- Prior to implementation:
  - verify the enhancement activity is planned for acres that meet the criteria within the enhancement guide sheet.



# CONSERVATION STEWARDSHIP PROGRAM

- provide technical assistance in:
  - preparing specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation, and will discuss the details with the participant.
  - determining size, shape, location, and distribution of openings, including percentage of the stand that will be in openings, to meet the criteria within the enhancement guide sheet.
  - evaluating stocking and acceptable growing stock for both pre- and post-treatment stand conditions.
  - identifying desired species to be regenerated in the openings, as needed.
- provide and explain the following NRCS Conservation Practice Standards as they relate to implementing this enhancement (as applicable for the site):
  - Forest Stand Improvement (Code 666)
  - Woody Residue Treatment (Code 384)
  - Prescribed Burning (Code 338)
  - Integrated Pest Management (Code 595)
  - Forest Trails and Landings (Code 655)
  - Access Road (Code 560)
- During implementation:
  - evaluate any planned changes to verify they meet the enhancement criteria.
  - provide technical assistance if requested by the participant.
- After Implementation:
  - verify the planned patch openings were established to specifications developed for the site and the enhancement criteria.

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_

Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_

Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature

\_\_\_\_\_  
Date

## Alabama Supplemental Guidance for CSP Enhancement

### 2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION

#### ENHANCEMENT NUMBER AND TITLE:

#### **E666K – Creating Structural Diversity with Patch Openings**

#### **Conservation Practice 666: Forest Stand Improvement**

**BRIEF DESCRIPTION OF ENHANCEMENT: Forest stand improvement that creates patch openings to create or maintain diversity in stand composition and structure, increase pest resistance, reduce wildfire risk and increase wildlife food availability.**

#### Guidelines:

1. This enhancement will only be used in stands where the majority of the trees are closed canopy hardwoods or any species of pine and the acceptable growing stock is greater than or equal to 50 sq feet of basal area per acre.
2. The size of the opening may vary between 1 and 10 acres except for longleaf pine stands where the size of the opening can be < 1 acre. As much as practical, the openings should be well distributed over the treatment area.
3. Openings may be created using mechanical or chemical methods.
4. Between five percent and thirty percent of the acres that are that are eligible for this enhancement will be converted into openings. (Example: Landowner owns 100 ac mature hardwood; plan will include between 5 and 30 acres patch openings) Any amount of the 30 percent maximum can be converted to permanent wildlife openings. Any amount of the 30 percent maximum can be left for natural timber regeneration. Any combination of the two management methods will also be allowed.
5. Areas that are not converted into permanent openings will be allowed to regenerate naturally into young timber. Landowners may choose to interplant high quality hardwood or longleaf seedlings (depending on current stand species) in these areas to generate improved timber stands in future years. The other option for regeneration would be to allow natural regeneration of timber from existing trees.
6. Permanent wildlife openings should be 1 acre and larger. Stumps removed from a wildlife opening that is to be disked should be piled and burned or otherwise removed from the immediate area. Landowners are encouraged to have some permanent openings in naturally occurring herbaceous cover as opposed to all openings in annually planted plots. Locate any permanent openings that are created in areas that are not subject to erosion.
7. Utilize areas within the stand that have poor quality timber if possible. Take advantage of areas that have lower quality stems due to insect or disease issues, broken tops or other issues from storm damage or areas that had poor initial stocking. Newly created log landings can be used as a portion of the openings if they meet criteria above.
8. All harvesting must be in accordance with the Alabama's Best Management Practices for Forestry.

## Alabama Supplemental Guidance for CSP Enhancement

PRODUCER NAME:				DATE:	
TRACT NUMBER(S):				COUNTY:	
Field Number or Stand	Field Acres	Total Acres to be Treated	Number openings to be created	**Desired species to regenerate (unless converting all to permanent wildlife openings)	Average opening size in acres

### Suitable Species List for Alabama

\*\*Hardwood species suitable for this enhancement.

Species	Primary regeneration method: seed, sprouts, advance regeneration
Native oaks	Advanced regeneration, stump sprouts and seed
Sycamore	Stump sprouts
Cottonwood	Stump sprouts
Hickory	Stump sprouts
Ash	Seed and sprouts
Sweetgum	Root and stump sprouts
Yellow poplar	Seed and stump sprouts

## Alabama Supplemental Guidance for CSP Enhancement

Black cherry	Seed and stump sprouts
Black gum	Stump sprouts
Black Walnut	Seed
Bald Cypress	Seed and stump sprouts
Pecan	Seed and stump sprouts
Persimmon	Root and stump sprouts
Native shrubs	Seed and sprouts (following burning)

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A COMPLETED E666K JOB SHEET
- PROVIDE AN UPDATED FOREST MGT PLAN
- MAPS OF THE AREA or LOCATION(S) OF THE OPENINGS
- PHOTO DOCUMENTATION OF ENHANCEMENT
- DATES OF COMPLETED CUTTING PRACTICE

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the openings are created.

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CSP Participant Name

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Date



**CONSERVATION ENHANCEMENT ACTIVITY**

**E6660**

**CONSERVATION STEWARDSHIP PROGRAM**

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

**Conservation Practice 666: Forest Stand Improvement**

**APPLICABLE LAND USE: Forest, Associated Ag Land, Farmstead**

**RESOURCE CONCERN: Animals**

**ENHANCEMENT LIFE SPAN: 10 Years**

**Enhancement Description**

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

**Criteria**

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



## CONSERVATION STEWARDSHIP PROGRAM

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



# CONSERVATION STEWARDSHIP PROGRAM

## Documentation and Implementation Requirements:

### Participant will:

- Y Prior to implementation, participant will work with NRCS to identify the desired wildlife species that use snags, den trees, coarse woody debris, perches, and/or brush piles for shelter, cover, nest sites, and/or rearing sites, and are likely to benefit from the enhancement.
- Y Prior to Implementation, participant will work with professional forester or NRCS to delineate on a map the acres that the enhancement would be applied.
- Y Prior to implementation, participant will work with professional forester or NRCS to estimate how many snags, wolf trees, den trees, coarse woody debris, and/or brush piles are present per acre on the acres identified.
- Y Prior to implementation, work with NRCS to determine how many snags per acre per size class would be needed in addition to those present that will benefit the wildlife species.

### Desired Wildlife Species

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

- Y During implementation, notify NRCS if any planned changes to verify they meet the enhancement criteria.
- Y During implementation, keep a written log and take digital photos of snag/den trees created and approximate locations on a map.





# CONSERVATION STEWARDSHIP PROGRAM

- Y After implementation, notify NRCS that the work has been completed; submit digital photos.
- Y After implementation, retain digital photos for NRCS to verify practice has been completed.

**NRCS Will:**

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



# CONSERVATION STEWARDSHIP PROGRAM

### NRCS Documentation Review:

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_

NRCS Technical Adequacy Signature

Date

E6660 Snags, den trees, and coarse woody debris for wildlife habitat	May 2020	Page   6
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**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E666O – Snags, den trees, and coarse woody debris for wildlife habitat**

**Conservation Practice 666: Forest Stand Improvement**

**BRIEF DESCRIPTION OF ENHANCEMENT: Improve wildlife habitat through creation and/or retention of snags and den trees, OR creation of coarse woody debris on the forest floor OR provide cover/shelter for native wildlife species through brush pile creation while retaining forest stand structural diversity.**

**Choose a group of species for management. (Circle one choice below)**

- **Managing for bird species that use snags and cavities (will require snag creation)**

**OR**

- **Managing for rabbits and small mammals (will require brushpile creation)**

**OR**

- **Managing for reptiles and amphibians (will require creation of downed logs or will require retaining longleaf pine stumps).**

**Note: For any of the choices above, it is important to identify preferred tree species to retain.** Refer to Alabama 645 standard and associated job sheets for recommended trees to retain to meet landowner's wildlife management objectives.

## **Managing for Birds and Tree Bats by Creating Snags and Den Trees**

Snags are dead or partially dead standing trees that provide several important benefits to a variety of wildlife (see Table 2). Snags provide cavities for nesting and resting, perches for hunting and displaying, and an abundant supply of food for insect eaters. In Alabama, there are many species of birds and mammals that use snags at some point in their life cycles. Two such mammals are the Indiana bat and the Northern long-eared bat; they are federally listed species. In addition, many species of reptiles and amphibians also use the cavities in snags.

Table 2 - Some of the benefits provided for wildlife by snags

## Alabama Supplemental Guidance for CSP Enhancement

Cavities	Excavated in snags by primary cavity excavators like woodpeckers Used by woodpeckers for shelter and nesting cover Used for nest sites by secondary cavity nesters (i.e., those species unable to excavate their own cavities) like the wood duck, eastern bluebird, and gray squirrel.
Loose Bark	Begins to loosen as a tree dies and forms "bark cavities"  Bark cavities are used for cover, as roost sites for forest dwelling bats.
Insects	Become abundant in the decaying wood of snags  Provide a valuable food source for insect eaters like woodpeckers and nuthatches
Perch Sites	Perch sites are provided for many birds including songbirds like the indigo bunting (singing perch), raptors like American kestrel (hunting perch), and kingfishers like the belted kingfisher (fishing perch).

Different species of wildlife prefer different types and sizes of snags in a variety of habitats. Some species prefer hard snags (dead or partially dead trees with sound wood and some limbs remaining) while others prefer soft snags (also called "punky," in advanced stages of decay, and rarely with limbs). Some species, like wood ducks and barred owls, require large snags simply because they need large cavities in which to nest.

Other species, such as the tufted titmouse, will forage and nest in cavities inside smaller snags. To accommodate a variety of species, many landowners try to maintain several types and sizes of snags and den trees.

The best method to provide snags for wildlife is to retain existing snags in places where they will not create a dangerous situation for people using the nearby area for outdoor activities like hiking, hunting, or cutting firewood.

When the abundance or distribution of snags is inadequate or if particular types of snags are desired, snags can also be "created."



*Landowner identifying a preferred tree to retain (i.e. not deaden)*

## Alabama Supplemental Guidance for CSP Enhancement



*Landowner deaden/girdling a tree with a chainsaw*

Creating snags involves deadening trees so that they remain standing. Success depends on the method used, the tree species you are trying to deaden, the current health of the individual tree, and the specific site characteristics such as the presence of forest pests that may accelerate the tree's death.

Retaining or creating snags is often incorporated into other habitat management practices, such as crop tree release.

For instance, if clearing is planned to create an opening, some of the trees that could be removed while clearing could instead be deadened and left standing for use by wildlife.

If a forest-edge cutting or a tree and shrub release is planned, some of the trees that would be removed can instead be deadened and left standing.

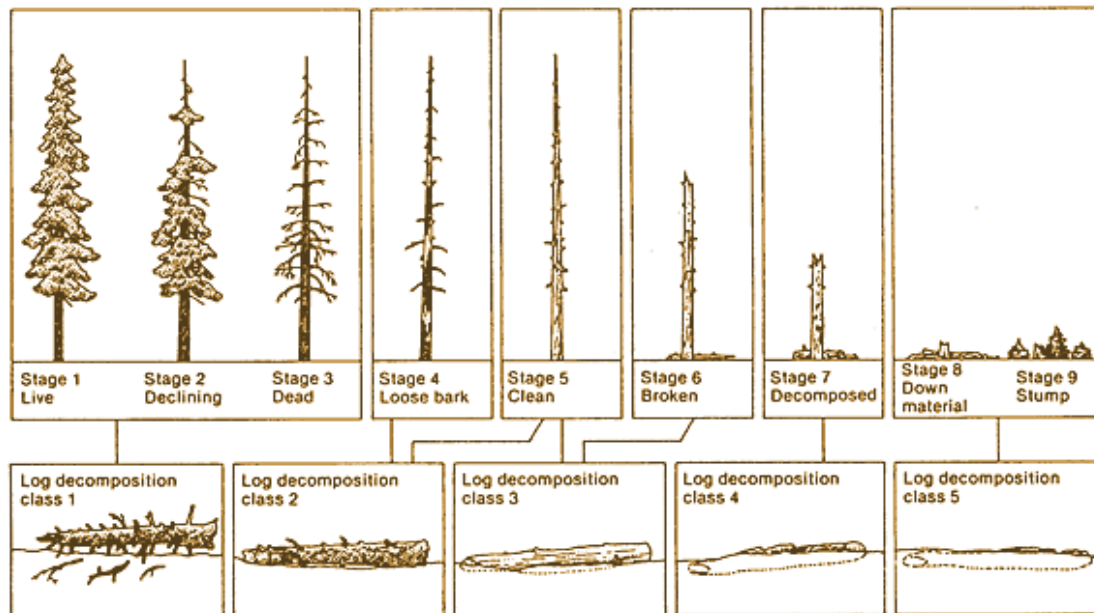


Figure 1. Snag and down wood decay classification system (Maser et al. 1979)

## **Requirements for Snag Creation Option:**

- **Eligible Treatment Areas:** Hardwood forests and mixed pine-hardwood forests that are not in a burning regime. Pine stands are not eligible due to the combustible nature of dead snags.
- **Treatment Recommendations:** It is preferable to treat some acres at the start of the contract and the balance of the acres at the end of the contract, to spread out the time frame of available snags on the property.
- ***Small, Medium AND Large snags must be created or retained. Existing snags in stage 3 or 4, which is fresh dead or dead and holding bark, (see figure 1 above) will count toward required number of snags. Retained snags must be documented to be counted (flagged and photos taken).***
- **Small Trees:** Create a minimum of 2 snags per treated acre; between 6 inch and 10 inch diameter at breast height (dbh) **AND**
- **Medium Trees:** Create a minimum of 2 snags per treated acre; between 10 and 20-inch dbh **AND**
- **Large Trees:** Create a minimum of 2 snags per treated acre; greater than 20 inch dbh OR create a minimum of 4 snags per treated acre; 15 inches or larger. Tree sizes can be combined for the large tree class. Example, if a landowner enrolls 10 acres, they may create 10 snags greater than 20 inches in diameter and 20 snags that are 15 inches or larger to meet the qualifications for the large tree class on that 10 acres.
- Snags that are created can be scattered across the treatment area or they can be created in groups or clusters.
- Snags can be created by girdling or by injection with herbicides. IF girdling is the method of choice then a chainsaw should be used to make a solid cut through the bark and cambium into the wood that is carried all the way around the tree and crosses the cut made at the starting point. It is very important to ensure the cut gets down into the wood and completely severs the nutrient and water flow from the roots to the crown. Herbicide injection tends to be more effective on tree deadening than girdling, but herbicides can have residual effects if care isn't taken. Soil active herbicides dripping out of the cut on the target tree can damage other surrounding trees, so use soil active herbicides with caution. Also keep in mind that herbicides can sometimes travel from a target tree to a nearby non-target tree of the same species through root grafts. Follow all herbicide label directions.

## **Managing for Rabbits and Small Mammals by Creating Brush Piles**

Brushpiles should be created evenly throughout the stand. It is best to start by selecting 2 or 3 low quality trees (from the timber and wildlife standpoint) and hinge cut them. While felling, direct the tops toward a central location to start the brushpile. Hinge cutting, also known as “creating living brushpiles”, is the process of making a partial cut through the trunk of a small tree in order to fell the tree without completely removing it from the stump. The objective is for the tree to remain alive while lodged on the ground. This will create browse for a number of species, as well as escape and nesting cover for others.

## Alabama Supplemental Guidance for CSP Enhancement

It is best to review the stand to be treated with a forester or wildlife biologist to determine which species and which individual trees need to be removed. In general, remove lower quality species from both the wildlife and the timber management perspective. Common species to remove include ash, maple, sweetgum, blackgum, and elm. This method is NOT recommended for exotic invasive tree species, such as privet, chinaberry, paulownia, etc. This method will allow these species to continue to reproduce since they will remain alive after hinge cutting.

When practical, use hinge cutting to remove trees from the forest canopy that are crowding “crop” trees. Crop trees are trees that are superior in size and quality for wildlife mast and timber production. Trees that are hinge cut near crop trees will increase sunlight, nutrients and water to crop trees, increasing growth to those trees. These can be identified by a natural resources professional.

To complete a hinge cut, make a partial cut into the tree 2 to 3 feet from the ground. The cut should be on the opposite side of the tree from the direction the top needs to go when it falls. Stop the cut when it has severed from two-thirds to three-quarters of the stem. Often smaller trees can be given a push if they don't fall on their own. Be careful not to cut too much of the stem or the tree could snap off the stump when it falls. Also be sure to follow all standard safety procedures when cutting trees with a saw.

After hinge cutting several trees to start the brushpile, then cut several more low-quality trees and shrubs to pile onto the hinge cut tops. Continue until the brushpile is approximately 10 to 15 feet across and 4 to 6 feet high. If larger diameter (3+ inch) logs are used, then a 4 foot height is acceptable. If smaller diameter branches are mostly used, then a 6 foot height is better because smaller limbs decay faster.

### **Requirements for Brushpile Creation Option:**

- **Eligible Treatment Areas for Brushpile Creation:** Any forest stand type is eligible for brushpile creation. **However**, do **NOT** locate brushpiles in timber stands that will be subject to prescribed burning.
- **Treatment Recommendations:** Brushpiles deteriorate naturally over time. Therefore, it is preferable to treat some acres at the start of the contract and the balance of the acres at the end of the contract, to spread out the time frame of available brushpiles on the property.
- Create 1 brushpile for every acre of habitat treated.
- Brushpiles should be evenly distributed across a timber stand.
- Locate brushpiles near the edges of open areas when possible. Rabbits forage in open areas along roads, firebreaks, wildlife openings, etc.

## Managing for Reptiles and Amphibians:

### Choose One of the Following Two Options: Creating Downed Woody Debris OR Retaining Vertical In-Ground Woody Debris

#### Creating Downed Woody Debris

Downed woody debris is very important for nutrient cycling and many species of wildlife. Many insects, amphibians and reptiles use woody debris, such as fallen trees. In addition, many mammals and birds forage on downed logs looking for insects and amphibians.

Larger downed woody debris, such as tree trunks, last much longer and have more insect and amphibian diversity than smaller debris such as the limbs and tops of trees. These logs can last for many years. Each stage of decay is important for use by certain species.

Larger trees also have more heartwood, which delays decay longer than a tree with all sapwood. Some species are more decay resistant than others. For example, trees from the oak family tend to decay slower than trees from lighter seeded species such as gum, maple or sycamore.

To create downed woody debris, chainsaw fell trees by cutting all the way through the tree, no more than 1 foot above ground level. Caution should be taken any time a chainsaw is used or trees are felled. Both can be extremely dangerous. For those unfamiliar with proper safety of chainsaw use and felling trees, it is recommended to hire a professional to fell the trees.

#### Requirements for Downed Woody Debris Option:

- **Eligible Treatment Areas for Creation of Downed Woody Debris:** Hardwood forests and mixed pine-hardwood forests that are not in a burning regime. Pine stands are not eligible due to the combustible nature of downed logs.
- **Treatment Recommendations:** It is preferable to treat some acres at the start of the contract and the balance of the acres at the end of the contract, to spread out the time frame of available woody debris on the forest floor across the property.
- **Trees to Fell:** Fell a minimum of 1 snag per treated acre; greater than 20 inches dbh **OR** fell a minimum of 2 snags per treated acres; greater than 15 inches dbh. Tree sizes can be combined for the treatment area. Example, if a landowner enrolls 10 acres, they may fell 5 trees greater than 20 inches in diameter and 10 trees that are 15 inches or larger to meet the qualifications on that 10 acres.

**OR**



## Retaining Vertical In-Ground Woody Debris

Longleaf pine stumps are sought after by companies that extract the natural rosin from stumps. These stumps are purchased from landowners and harvested by pulling them from the ground and transported to processing facilities. This practice has financial benefits to landowners. Other landowner benefits, such as free site preparation for planting, often play a role in the decision to sell stumps. However, leaving stumps has advantages to many species of wildlife. The associated holes and cavities in the ground that are created through the varied stages of stump decay are used by many species of wildlife, including amphibians, reptiles, and small mammals. These are very important for certain species, such as the gopher frog.

“Stump removal (“stumping”) eliminates a critical wildlife habitat that unfortunately is seldom considered. For millennia, the butts of dead—and often quite old--trees were an abundant feature across the landscape. Beneath the ground, decomposing and/or burned-out taproot and lateral roots created a network of cavities. These served a vital ecological function for a diversity of small mammals, reptiles, and amphibians taking shelter from winter cold, summer heat, and fire. The cut stumps of today provide the same function, provided they are left to decompose or burn out naturally.” (this paragraph is an excerpt from Stump Removal and the Longleaf Ecosystem, which was published in the Longleaf Leader. Author: Mark Bailey, Conservation Southeast Inc.)

## Requirements for Vertical In-Ground Woody Debris

### Option:

- The treatment area must have longleaf pine stumps. Stump sales are generally limited to areas that have longleaf pine stumps. Stump buyers will also harvest slash pine stumps, but only if they are as part of a mixed stand with longleaf. To be eligible, the area must have had a stand that contained at least 50% longleaf pine.
- **Retain all pine stumps** on the treatment area. (No stump sales are allowed on the treatment area)
- If the stand has had a stump sale in the past, then this enhancement is not eligible.
- If the stand has been replanted in trees that have not been thinned, then this enhancement is not eligible.
- *Minimum treatment area is 15 acres.* Less than 15 acres in one tract is not eligible for stump retention, but will still be eligible for snag creation, brush pile creation or downed woody debris creation. (There is a mobility cost that prevents companies from purchasing stumps on tracts smaller than 15 acres in size, so there is no need to pay landowners to retain stumps on acreage that is not in danger of stump sales)
- Stumps must be from natural stands or 30+ year old longleaf plantation pine and must be from mature (sawtimber size) trees to be eligible for this enhancement. Sawtimber size will average between 12 and 15 inches in diameter OR if they are older stumps (many years since timber harvest) they will be “lighter wood” or “fat lighter” stumps and can be smaller.
- Recently cut longleaf stumps can be identified by looking at the length of needles and size of twigs on the downed tops or having a forester look at the rings and pith of the

## Alabama Supplemental Guidance for CSP Enhancement

stump. Often, species in a cut stand can be identified by looking at boundary trees or adjoining natural stands.

- Older stumps will be any that are considered “lighter wood” stumps. Those will not need to be identified to species. Fat lighter stumps are the best quality stumps for processing, regardless of pine species.

### E666O JOB SHEET

PRODUCER NAME:						DATE:	
TRACT NUMBER(S):						COUNTY:	
Field or Stand Number	Acres to be Treated	Number Small Snags Created - Retained	Number Medium Snags Created - Retained	Number Large Snags Created - Retained	Number of Brush Piles Created	Number of Logs Felled for Downed Woody Debris	Acres of Vertical In-Ground Woody Debris Retained (15 ac minimum)

BE SURE TO REVIEW NATIONAL CSP ENHANCEMENT DOCUMENT.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- A COMPLETED E666O JOB SHEET
- MAPS OF THE AREA or LOCATION(S) OF THE PRACTICES
- PHOTO DOCUMENTATION OF ENHANCEMENT
- DATES AREAS WERE TREATED

## Alabama Supplemental Guidance for CSP Enhancement

The attached documents support the full implementation of this Conservation Stewardship Enhancement. This information should be submitted after the practice is completed.

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CSP Participant Name

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Date



**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

E666P Summer roosting habitat for native forest-dwelling bat species	August 2019	Page   1
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## CONSERVATION STEWARDSHIP PROGRAM

size and age of the tree. Large/mature trees also develop splits, breaks, dead limbs, and cavities that serve as roosting areas.

- Habitat trees should be distributed evenly across the treated acres.
- The combined snags and live, loose bark trees should be created or maintained at a combined rate as determined to be necessary to meet the habitat requirements of the bat species of concern and the specific forest type, as defined by the USFWS and NRCS state technical staff.
- The enhancement will comply with all applicable federal, state, and local laws and regulations, and with States' Forestry Best Management Practices for Water Quality.
- When determining which trees will be killed for snag creation, and/or used to create loose/exfoliating bark, consider effects on the remaining stand.
  - Identify and retain preferred tree and understory species to achieve all planned purposes and landowner objectives.
  - Use available guidelines for species and species groups to determine spacing, density, size-class distribution, number of trees, and amount of understory species to be retained. Schedule treatments to avoid overstocked conditions using approved silvicultural stocking guides.
  - Implement forest stand improvement activities in ways that avoid or minimize soil erosion, compaction, rutting, and damage to remaining vegetation, and that maintain hydrologic conditions.



## CONSERVATION STEWARDSHIP PROGRAM

### Documentation and Implementation Requirements:

#### Participant will:

- Prior to implementation, work with NRCS to complete a wildlife habitat evaluation guide or State equivalent.
- Prior to implementation, obtain a wildlife habitat management plan for the targeted species suite which includes:
  - Wildlife Habitat Evaluation Guide scores for benchmark and desired conditions.
  - The minimum criteria to meet the targeted species habitat requirements.
  - A plan map indicating the stands and individual trees selected for the treatment.
  - A list of NRCS Conservation Practice Standards that will be applied to reach the desired habitat conditions
- During implementation, keep a field log which includes:
  - Treatment dates
  - Count of treated (girdled) trees and treatment actions completed (i.e. removal of canopies within 15 feet of habitat tree).
- During implementation, notify NRCS of any planned changes, notify NRCS of any planned changes to verify they meet the enhancement criteria.
- After implementation, notify NRCS that implementation has been completed.
- After implementation, make the follow items available for NRCS review to verify implementation of the enhancement:
  - Wildlife Habitat Management Plan.
  - Wildlife habitat plan treatment map.
  - Field log.
  - Digital photographs.



# CONSERVATION STEWARDSHIP PROGRAM

**NRCS will:**

- Prior to implementation, assist the participant in completing the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) or State equivalent. **Target Bat Species of concern:** \_\_\_\_\_  
**Current/Existing Condition WHEG score:** \_\_\_\_\_  
**Planned WHEG score after implementation:** \_\_\_\_\_
- Prior to implementation, provide participant assistance in the development of a wildlife habitat management plan.
- Prior to implementation, provide participant with additional technical assistance to the, as requested.
- During implementation, as needed, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify implementation of the wildlife habitat management plan, by reviewing field log records kept and digital photographs taken during enhancement implementation.
- After implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG) or State equivalent. **WHEG score after implementation:** \_\_\_\_\_

**NRCS Documentation Review:**

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

Participant Name \_\_\_\_\_ Contract Number \_\_\_\_\_

Total Amount Applied \_\_\_\_\_ Fiscal Year Completed \_\_\_\_\_

\_\_\_\_\_  
NRCS Technical Adequacy Signature      Date

**2023 CSP ENHANCEMENTS – GUIDANCE & PERFORMANCE CERTIFICATION**

**E666P – Summer Roosting Habitat for Native Forest-Dwelling Bat Species**

**Conservation Practice 666: Forest Stand Improvement**

BRIEF DESCRIPTION OF ENHANCEMENT: This enhancement will be used to create new potential roost snags for forest-dwelling bat species.

**Some important things to note:**

- **Eligible Treatment Areas:** Hardwood forests and mixed pine-hardwood forests. Pine is not an eligible treatment area because prescribed fire will destroy standing snags.
- **Recommended Treatment Implementation:** It is preferable to treat some acres at the start of the contract and the balance of the acres at the end of the contract, to spread out the time frame of available snags on the property. Ideally, the conservation plan will include roughly half the acres in the first 2 years of the contract and the other half of the acres in the last 2 years of the contract.
- **Green tree retention-Future Snags:** Leave as many cull trees as possible as “leave trees” to become future snags. Cull trees include those with broken tops, wounded areas (ex: lightning strikes) or other defects that reduce their commercial value and increase future mortality. These can be girdled or injected with herbicide as snag creation as needed in the future if they don’t die on their own.
- **Green tree retention-Species with Loose Bark:** Leave as many large live trees as possible of species that have loose/exfoliating bark. Species such as white oak, shellbark hickory and shagbark hickory are excellent examples.
- **Existing Snag Retention\*:** Retain all existing snags that are not a safety hazard. (Avoid all disturbance of snags during non-volant (pupping) season from May 1-July 15.)  
***Please note that snag retention is not a part of this enhancement; only new snags created will count toward fulfilling this enhancement.***
- **Snag Creation—Medium AND Large snags must be created for this enhancement.**
- **Snag Creation—Medium Trees:** Create a minimum of 3 snags per treated acre; between 8 inch diameter at breast height (dbh) and 10 inches dbh and 30’ in height **OR** create a minimum of 8 snags per treated acre; between 5 inch dbh and 8 inch dbh and greater than 25’ in height. These sizes may be combined (For example: Create 2 eight inch snags per ac and 3 six inch snags per ac) **AND**
- **Snag Creation—Large Trees:** Create a minimum of 2 snags per 5 treated acres; greater than 15-inch dbh and greater than 50’ in height **OR** create a minimum of 1 snag per treated acre; between 10-inch dbh and 15 inch dbh and greater than 40’ in height. These sizes may be combined. (For example: one snag of greater than 15-inch dbh along with 3 trees of 10”-15” dbh per 5 acres of treated area.)
- **Snag Distribution—**Snags that are created can be scattered across the treatment area or they can be created in groups or clusters.



## Alabama Supplemental Guidance for CSP Enhancement

- **Snag Creation**—Snags can be created by girdling or by injection with herbicides. If girdling is the method of choice then a chainsaw should be used to make a solid cut through the bark and cambium into the wood that is carried all the way around the tree and crosses the cut made at the starting point. It is very important to ensure the cut gets down into the wood and completely severs the nutrient and water flow from the roots to the crown. Herbicide injection tends to be more effective on tree deadening than girdling, but herbicides can have residual effects if care isn't taken. Soil active herbicides dripping out of the cut on the target tree can damage other surrounding trees, so use soil active herbicides with caution. Also keep in mind that herbicides can sometimes travel from a target tree to a nearby non-target tree of the same species through root grafts. Follow all herbicide label directions.

ATTACH COPIES OF REQUIRED DOCUMENTS AS NOTED BY THE ENHANCEMENT JOB SHEET. CHECK THE BOX OR OTHERWISE IDENTIFY THE SUPPORTING DOCUMENTATION.

- MAPS OF THE AREA or LOCATION(S) WHERE THIS PRACTICE WAS APPLIED
- REPRESENTATIVE DIGITAL IMAGES/PHOTOS OF SOME TREATED TREES AND INDICATE AREA ON MAP
- DATES OF COMPLETED ACTIVITY

The attached documents support the full implementation of this Conservation Stewardship Enhancement.

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CSP Participant Name

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Date

## Alabama Supplemental Guidance for CSP Enhancement

\*SNAG RETENTION Information: According to the document referenced below, "Forest Management and Bats": "In general, retain snags in the early stages of decay rather than more-decayed ones, tall and large-diameter snags rather than smaller ones, and snags with more bark cover than those with little cover." (See *Figure 1*, Classes 2 through 4.) "Snags should be well distributed across the landscape, including along drainage bottoms, upland slopes and ridge tops. Preference should generally be given to maintaining snags along forest-stand edges and other open areas where they receive more sunlight. When practicing even-aged management, such as clearcuts, shelterwoods and seed-tree cuts, and where silvicultural and logging safety objectives are not compromised, consider leaving snags either evenly distributed across harvest units or in patches. Leaving snags in patches interspersed with green trees helps keep them from being blown over by high winds, as will leaving them in locations with protection from prevailing winds. This also makes it easier to conduct management operations. In landscapes that are intensively managed for timber, snags can be maintained primarily in streamside management zones, forested corridors and other less-intensively managed habitats. In coniferous forests, foliage-roosting bats that prefer broadleaf deciduous trees often are concentrated within riparian zones, since they usually contain more broadleaf vegetation."

### References

Taylor, Daniel A. R. 2006. Forest Management and Bats. Bat Conservation International, National Fish and Wildlife Foundation, USDA Natural Resources Conservation Service.

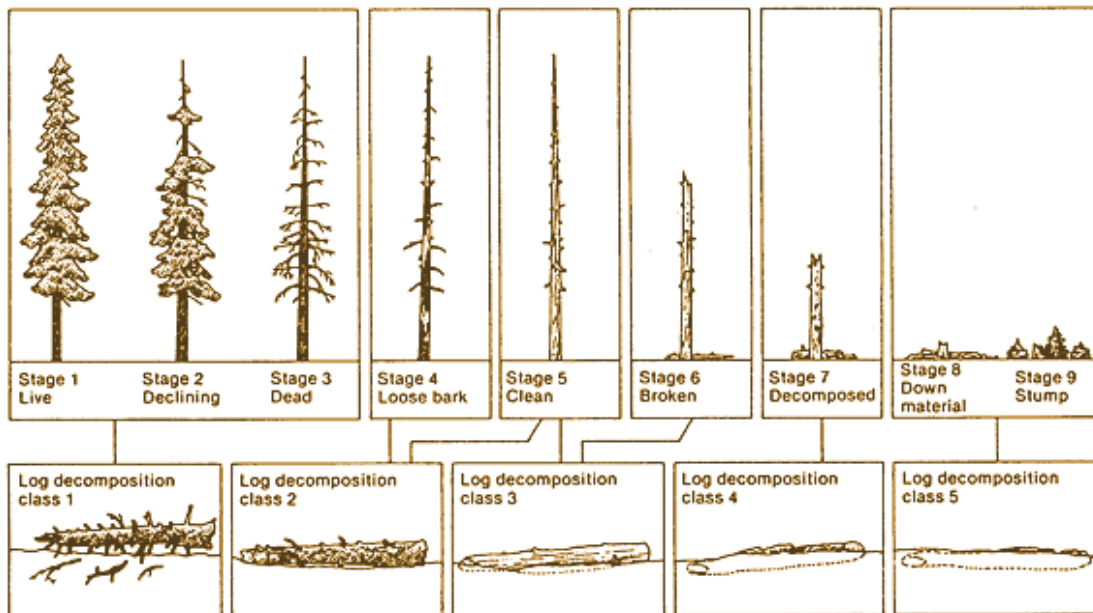


Figure 1. Snag and down wood decay classification system (Maser et al. 1979)

