



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.

Wildlife Species of Concern	
Cover & Shelter Requirements	
Planned WHEG Score after implementation	

- Y Prior to implementation, verify a map has been developed delineating the hayfields that will have the enhancement implemented.
- Y Prior to implementation, NRCS will provide technical assistance, as needed to:
 - o Develop a plan to harvest forage in a manner that protects stand longevity, while also maintaining or improving wildlife habitat. Plan must meet requirements of NRCS Conservation Practice Standard Forage Harvest Management (Code 511).



CONSERVATION STEWARDSHIP PROGRAM

- Develop specifications detailing the wildlife protection measures, such as selecting time periods to avoid forage harvest to protect wildlife and ensuring that suitable wildlife habitat exists during critical nesting periods.
- Υ During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- Υ After implementation, verify the planned forage harvest was completed to specifications developed for the fields delineated.
- Υ After implementation, review documentation and photographs of forage cutting heights to verify implementation of the enhancement.
- Υ If changes were made after implementation, complete the state's approved NRCS Wildlife Habitat Evaluation Guide (WHEG).

Wildlife Species of Concern	
Cover & Shelter Requirements	
WHEG Score after Implementation	

NRCS Documentation Review:

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

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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 15th. 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 15th. **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).

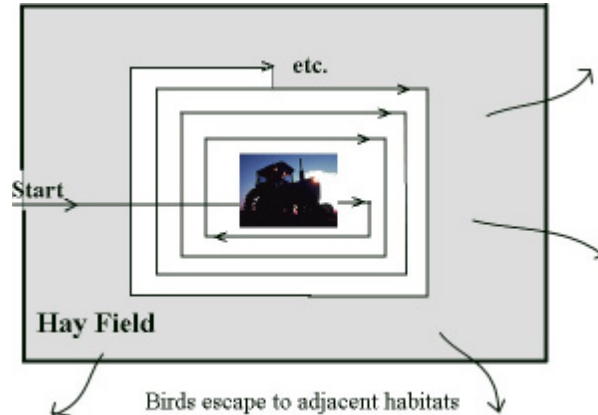
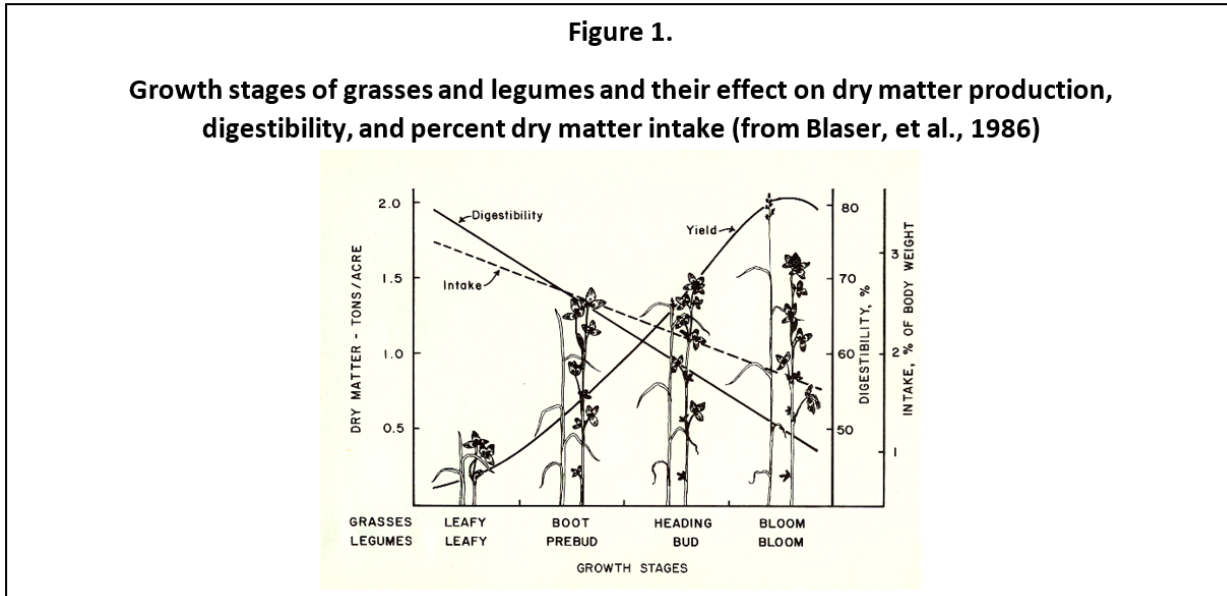


Fig. 2. Hay fields should be mowed from the center outward to allow birds to escape to adjacent habitats.

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 ¹ (days)
Grasses		
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
Legumes		
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.

CSP Participant Name

Date