

**UNITED STATES DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE**

**CONSERVATION PRACTICE STANDARD**

**PASTURE AND HAY PLANTING**

(Acre)

**CODE 512**

**DEFINITION**

Establishing native or introduced forage species.

**PURPOSES**

This practice may be applied as part of a conservation management system to accomplish one or more of the following purposes:

- Establish adapted and compatible species, varieties, or cultivars for forage production.
- Improve or maintain livestock nutrition and/or health.
- Balance forage supply and demand during periods of low forage production.
- Reduce soil erosion and improve water quality.
- Increase carbon sequestration.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice may be applied on cropland, hayland, pastureland, and other agricultural lands where forage production is feasible and desired.

**CRITERIA**

This practice shall comply with local, state, and federal regulations. Cultural resources (archaeological, historic, historic landscapes, or traditional cultural properties), wetlands, and endangered and threatened species shall be addressed when planning this practice. The State Resource Conservationist must approve changes or exceptions from the criteria of this standard.

**Plant Selection**

Select forage species capable of meeting the desired level of nutrition for the kind and class of livestock to be fed.

Select forage species that are suited to the soil and site conditions. The plants most commonly used in Alabama are shown in Table 1. Combinations of perennials or mixtures of perennials and annuals may be selected. Relative suitability tables in Section II-D and pasture and hayland suitability groups in Section II-K of the Technical Guides contains information on the soil suitability and forage yields for specific forage plants.

Only endophyte-free or novel endophyte varieties of tall fescue shall be planted for forage.

Select forage species that will provide adequate ground cover, canopy cover, and root mass to provide erosion protection when required by site conditions.

**Fertilizer and Lime**

Fertilizer and lime shall be applied according to NRCS conservation practice standard, *Nutrient Management – 590*.

**Pesticides**

Pesticides shall be applied according to NRCS conservation practice standard, *Pest Management – 595*.

Evaluate each field, site, or farm for risk or vulnerability of pesticides to impact water resources using all available information by using WIN-PST. These include pesticide leaching and surface loss potential, soil ratings for leaching and runoff, geology reports, stream classification, sinkhole maps, proximity of site to wells, streams, etc. All pesticides used on forage crops shall be in accordance to the label as approved by the Environmental Protection Agency (EPA) and the Alabama State Department of Agriculture.

## Seedbed Preparation

### New Plantings and Complete Renovation:

- **Conventional Tillage** – The soil shall be thoroughly prepared to a depth of at least 6 inches. The seedbed should be well pulverized, smoothed, and firmed before seeding. Fertilizer and lime shall be thoroughly mixed into the soil during seedbed preparation. Severely compacted soils or soils with a plow pan should be chiseled to the depth just below the compacted layer. Where deep compaction problems exist, the soil should be chiseled to a depth of at least 16 inches.
- **Residue Management, Mulch Till** – Prepare a seedbed with a chisel, disk, or other similar tool that will leave enough existing residue to provide a minimum of 50 percent ground cover. Tillage operations should begin early enough to ensure a kill of existing vegetation or apply herbicides that are labeled to kill the vegetation at least one week prior to tillage. Fertilizer and lime should be mixed into the soil during seedbed preparation.
- **Residue Management, No Till and Strip Till** – Graze or mow existing vegetation close prior to seeding. Herbicides shall be used to kill existing vegetation and to control weeds. Herbicides must be applied according to label instructions. Fertilizer and lime should be broadcast at least 14 days or more prior to seeding.

### Improve Stand or Species Composition of an Existing Stand and Overseeding Legumes:

- Graze or mow existing vegetation to at least a one-inch stubble prior to seeding. Prepare a seedbed by a light disking, ripping, or other mechanical method just enough to expose sufficient mineral soil to ensure adequate germination and space for the plants to grow. Do not penetrate the sod more than 2 to 3 inches. Herbicides may be used to suppress or kill bands of existing vegetation. Broadcast fertilizer and lime at or prior to seeding.

## Seed and Seeding

Seed shall meet or exceed the requirements of the Alabama Seed Law for germination, purity, and noxious weed seed limitations.

Seeding rates shall be calculated on a pure live seed (PLS) basis or percent germination.

Legume seed shall be inoculated with the proper, viable rhizobia before planting following the instructions on the inoculate package.

Evenly drill or broadcast seed and cover to the proper depth. On disturbed seedbeds, cultipack to cover small seeds and to firm the seedbed. Drills capable of seeding into sod shall be used for conservation tillage plantings.

Space bermudagrass sprigs at uniform intervals in rows or broadcast them. Cover so that at least  $\frac{3}{4}$  of the sprig is below the soil surface. The soil should be firmed around the sprigs with a packer wheel or cultipacker. Jointed bermudagrass clippings should be broadcast, immediately covered by disking, and firmed by cultipacking.

Plant during optimum planting dates. See Table 1. Where legumes are seeded with grasses, use the seeding dates for the grass.

Where clover is overseeded and the cricket population is high, an insecticide shall be used for cricket control.

Where two or more grasses are used in a mixture, reduce the seeding rate of each by one-third. Do not reduce the seeding rates of legumes when used in mixtures.

A small grain companion crop shall be planted with fall seeded bahiagrass. The companion crop shall be removed in early spring to prevent competition with the bahiagrass.

## CONSIDERATIONS

Where wildlife management is an objective, the food and cover value of the planting can be enhanced by using an approved habitat evaluation procedure to aid in selecting plant species and providing for other habitat requirements necessary to achieve the objective.

Forage species planted in mixture should exhibit similar palatability to one another to avoid spot or selective grazing.

If installation or maintenance of the practice has potential of affecting cultural resources (Archaeological, historic, historic landscape, or traditional cultural properties), follow Alabama's state policy for considering cultural resources.

Herbicides and other pesticides may be needed to adequately establish some forage species.

#### **PLANS AND SPECIFICATIONS**

Specifications for the establishment of pasture and hay plantings shall be prepared for each site or management unit. This shall be in accordance with the Criteria, Considerations, and Operations and Maintenance described in this standard, and shall be recorded on specification sheets, guide sheets, in narrative statements in the conservation plan, or other acceptable documentation.

#### **OPERATION AND MAINTENANCE**

Grazing shall be delayed in pastures until plants are well established. Annuals being managed for reseeding should not be grazed once they begin blooming.

Growth of seedlings or sprigs shall be monitored for water stress. Water stress may require reducing weeds, early harvest of any companion crops, irrigating where possible or replanting failed stands, depending on the severity of drought.

Invasion by undesirable plants shall be controlled by cutting, using a selective herbicide, or by grazing management through the manipulating of livestock stocking rates, density, and duration of stay. Insects and diseases shall be controlled when an infestation threatens stand survival.

#### **REFERENCES**

Alabama Agricultural Experiment Station Bulletin 397: *Cool Season Perennial Grass Species for Forage in Alabama*.

Alabama Cooperative Extension System Circular ANR-149. *Alabama Planting Guide for Forage Grasses*.

Alabama Cooperative Extension System Circular ANR-150. *Alabama Planting Guide for Forage Legumes*

*Southern Forages*. Ball, D., Hoveland, C., and Lacefield, G.

*Fescue/Endophyte/Animal Relationships*. Ball, D., Schmidt, S., Lacefield, G., Hoveland, C., and Young, W.

**Table 1. Forage Crops Commonly Grown for Pasture and Hay in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Warm Season Perennial</b>	20	¼ - ½	Mar 1–Jun 15 <sup>1/</sup>	Mar 1-Jul 15	Feb 1-Nov 1	Adapted to sandy soils; tolerates drought and poor drainage.
<b>Grasses</b>						
<b>Bahiagrass</b>						
<b>Bermudagrass</b> Seed (hulled)	5	¼ - ½	Apr 1-Jul 15	Mar 15-Jul 15	Mar 1-Jul 15	Adapted to sandy soils; tolerates drought; responds to nitrogen; potassium is important for survival and production.
<b>Bermudagrass – Sprigs</b> <sup>2/</sup> Rows Broadcast	30 bu. 45 bu.	3 – 6 2 – 4	Apr 1-Jul 15	Mar 15-Jul 15	Mar 1-Aug 15	Adapted to sandy soils; tolerates drought; responds to nitrogen; potassium is important for survival and production.
<b>Dallisgrass</b>	10 lbs. PLS <sup>3/</sup>	¼ - ½	Mar 15-Jul 1	Mar 1-Jul 1	Feb 1-Jul 1	Best adapted to moist sites & Blackbelt soils.
<b>Eastern Gammagrass</b> <sup>4/</sup>	8 lbs. PLS Drilled Drilled	1 – 1½	Apr 1- Jul 1	Mar 15-Jul 15	Mar 1- Jul 15	Best adapted to moist bottoms & stream terraces. Cannot be continuous grazed.
<b>Johnsongrass</b>	Drill 15 <sup>3/</sup> B-Cast 25	½ - 1	Apr 1-Jul 31	Apr 1-Jul 31		Best adapted to clay soils. Cannot be continuous grazed.
<b>Switchgrass</b> <sup>4/</sup>	5 lbs. PLS BC, 4 lbs. PLS Drill	0 – ¼	Apr 1 – Jul 1	Mar 15-Jul 15	Mar 1 – Jul 1	Adapted to soils with good moisture. Tolerates poorly drained soils. Cannot be continuous grazed.
<b>Big Bluestem</b>	12 lbs. PLS BC, 9 lbs. PLS Drill	1/4 – 1/2	April 1 – June 15	April 1 – June 15	April 1 – June 15	Cannot be continuously grazed. Deep well-drained soils preferred.
<b>Little Bluestem</b>	8 lbs. PLS BC, 6 lbs PLS Drilled	¼ - 1/2	April 1 – June 15	April 1 – June 15	April 1 – June 15	Does not tolerate poorly drained soils. Cannot be continuously grazed. Drought resistant.
<b>Indiangrass</b>	12 lbs. PLS BC, 9 lbs. PLS Drilled	¼ - 1/2	April 1 – June 15	April 1 – June 15	April 1 – June 15	Adapted to well drained, fertile clay soils. Heat and drought tolerant. Cannot be continuously grazed.

**Table 1 (cont.) Forages Crops Commonly Grown for Pasture and Hay in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Warm Season Annual Grasses Millet, Browntop, Proso, &amp; Foxtail</b>	Drill 20 B-Cast 30	½ - ¾	May 1–Aug 1	Apr 1-Aug 15	Apr 1-Aug15	Well drained productive soils. Drought tolerant.
<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 Blackbelt 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. Drought tolerant.
<b>Sorghum, Sweet and Forage</b>	Rows 5 B-Cast 20	1	Apr 20-May 15	Apr 20-May 15	Apr 20-Jul 1	Well drained productive soils. Drought tolerant.
<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. Drought tolerant.
<b>Cool Season Perennial Grasses Orchardgrass</b>	15	¼ -½	Aug 15-Nov 1	--	--	Less tolerant of drought and poor drainage than tall fescue; Will not tolerate over grazing
<b>Tall Fescue <sup>5r</sup></b>	Drill 20 B-Cast 25	¼ -½	Sep 1-Nov 1	Sep 1-Nov 1	Sep 15-Nov 15 <sup>6r</sup>	Best adapted to fertile soils with good moisture holding capacity.

**Table 1 (cont.) Forages Crops Commonly Grown for Pasture and Hay in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Cool Season Annual Grasses</b> Ryegrass	25	0 – ½	Aug 25-Oct 1	Sep 1–Oct 15	Sep 15–Nov 1	Best adapted to clay loam soils.
<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; Wheat more tolerant of heavy wet soils.
<b>Warm Season Perennial Legumes</b> Alfalfa	25	0- ¼	Aug 15-Oct 1	Sep 1-Oct 1	Oct 1–Nov 1	Requires deep, fertile, well drained soils. pH 6.0-7.0
<b>Birdsfoot Trefoil</b>	Alone 10 Mixtures 5	0- ¼	Sep 1-Oct 31	-	-	Requires well drained productive soils.
<b>Lespedeza, Sericea</b>	Drill 20 B-Cast 30	¼	Mar 15–May 15 Or Jun 15-Jul 15	Mar 1–May 1	Feb 15–May 1	Drought tolerant; best on clay or loam soils; tolerant of soil acidity and low fertility; slow to establish
<b>Warm Season Annual Legumes</b> Clover, Alyce	20	¼ - ½	-	-	May 15-Jul 15	Fertile, well drained soils.
<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 Blackbelt.

**Table 1 (cont.) Forages Crops Commonly Grown for Pasture and Hay in Alabama**

Forage Crop	Seeding Rate (lb/A)	Seeding Depth (in.)	Planting Date			Remarks
			North	Central	South	
<b>Cool Season Perennial</b> <b>Legumes</b> <b>Clover, White and Ladino</b>	3	0 – ¼	Sep 1-Oct 31 Or Feb 1-Apr 1	Sep 1-Oct 31 Or Feb 1-Apr 1	Sep 15-Nov 15	Requires well-drained soil with pH 6.5+; drought tolerant; supply potassium, phosphorus, sulfur & boron.
<b>Cool Season Annual Legumes</b> <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>	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>	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>	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, Lappacea</b>	10	0 – ¼	-	Sep 1-Oct 31	-	Black Belt soils only.
<b>Clover, Red</b>	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.

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

1/ Bahiagrass plantings in north Alabama are limited to Pensacola bahia, planted in counties contiguous to central Alabama, and in St. Clair, Calhoun, and Cleburne Counties.

2/ Use broadcast rates for machine planting in rows 24 inches or less.

3/ Drill – Drilled; B-Cast – Broadcast; and PLS = Pure Live Seed.

4/ May be included in a mixture of other native grasses, Indiangrass & big bluestem, on a trial bases. See conservation practice standard Conservation Cover – 327 for seeding mixtures and rates.

5/ Only endophyte-free or novel endophyte varieties of tall fescue shall be planted for forage.

6/ Fescue seeding in south Alabama is limited to subclass w soils except in MLRA 135.

**NOTES:**

A. Where legumes are seeded with grasses, use the seeding dates for the grasses.

B. 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.

C. Seeding rates for a cost-share program shall be the rate specified by the program.

# GEOGRAPHICAL AREAS FOR SPECIES ADAPTATION AND SEEDING DATES

