

**Natural Resources Conservation Service  
Conservation Practice Standard**

**FORAGE AND BIOMASS PLANTING  
(Ac.)  
CODE 512**

**DEFINITION**

Establishing, reestablishing, or interseeding adapted and/or compatible species, or cultivars of herbaceous species suitable for pasture, hay, or biomass production.

**PURPOSE**

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

- Improve or maintain livestock nutrition and/or health.
- Provide or increase forage supply during periods of low forage production (extending the length of the grazing season).
- Reduce soil erosion.
- Improve soil and water quality.
- Produce feedstock for biofuel or energy production.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice may be applied on cropland, hayland, pastureland, and other agricultural lands suitable to the establishment of annual, biennial or perennial species for forage or biomass production. This practice does not apply to the establishment of annually planted and harvested food, fiber, or oilseed crops.

**CRITERIA**

**General Criteria Applicable to All Purposes**

Plant species and their cultivars will be selected based upon:

- Climatic conditions, such as annual precipitation and its distribution, growing season length, temperature extremes and the USDA Plant Hardiness Zone. Refer to the

Jamie L. Whitten Plant Materials center's Mississippi Planting Guide or the Mississippi State University Web Site at [msucares.com](http://msucares.com). Additional information can also be found in the "Perennial Warm Season Grasses for the Southeast" handbook or "Southern Forages" handbook.

- Soil condition and landscape position attributes such as pH, available water holding capacity, slope, drainage, inherent fertility, acidity, alkalinity, flooding and ponding and levels of toxic elements that may be present such as selenium and aluminum.

Follow recommendations for planting rates, methods and dates obtained from the Mississippi Planting Guide, Mississippi State University Extension Service, Alcorn State University Extension Service, the Agronomy Handbook [msucares.com](http://msucares.com) or MAFES research trials.

Seeding rates will be calculated on a pure live seed (PLS) basis. Refer to MS Planting Guide or Southern Forage Handbook for PLS calculations.

Plant at a depth appropriate for the seed size or plant material, while assuring uniform contact with soil. Refer to Specification Sheet 512-01 Grasses and Legumes Commonly Grown in Mississippi - Adapted Species, Seeding Rates and Seeding Dates.

Prepare the site to provide a medium that does not restrict plant emergence. Provide a firm, weed-free seedbed that ensures good seed-to-soil contact. For new pasture, biomass or hayland plantings, prepare a seedbed by disking and/or chiseling to a minimum depth of four (4) inches and smooth with one or two harrowings. Prepare the seedbed well in advance of planting to allow the soil to become well settled and firm before planting. Where this cannot be done, use a cultipacker to firm the seedbed before and

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after planting. If new plantings are to be no-tilled, apply a recommended burndown three (3) weeks before planting and at planting if needed. For renovation of pasture or hayland prepare a seedbed by one light disking and smooth with a harrow or use a sod seeder.

Plant when soil moisture is adequate for germination and establishment.

All seed and planting materials will meet state and federal laws.

Do not plant federal, state, or local noxious or species.

Apply all plant nutrients and/or soil amendments for establishment purposes according to a current soil test.

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.

Select forage species based on the intended use, level of management, realistic yield estimates, maturity stage, and compatibility with other species. Verify plant adaptation to the area prior to planting.

#### **Additional Criteria for Improving or Maintaining Livestock Nutrition and/or Health**

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

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

#### **Additional Criteria for Providing or Increasing Forage Supply During Periods of Low Forage Production (Extending the Grazing Season)**

Forage species selected shall fill a recognized dietary deficiency within the year-long forage management program. To extend and/or improve summer forages (Bahagrass, Bermudagrass, Dallisgrass) overseed with white clover, red clover, crimson clover, Ball clover, vetch or annual lespedeza. In north Mississippi, tall fescue can be sod seeded into summer pastures to extend grazing. Tall fescue can be

sod seeded with white clover, red clover, or crimson clover.

#### **Additional Criteria for Reducing Erosion And Improving Water Quality**

Plants shall have the ability to provide adequate ground cover, canopy cover, root mass and vegetal retardance to water flows either alone or in combination with other forage species when site conditions require erosion protection.

#### **Additional Criteria for Producing Feedstocks for Biofuel or Energy Production**

Select plants that provide adequate kinds and amount of plant materials needed.

### **CONSIDERATIONS**

In areas where animals congregate consider establishing persistent species that can tolerate close grazing and trampling.

Where wildlife and pollinator concerns exist, consider plant selection by using native forbs legumes and grasses suitable for the area. Where air quality concerns exist consider using site preparation and planting techniques that will minimize airborne particulate matter generation and transport.

Where carbon sequestration is a goal, select deep-rooted perennial species that will increase underground carbon storage.

During and upon stand establishment planning and application of the following conservation practices should be considered as applicable; Forage and Biomass Harvest (511), Herbaceous Weed Control (315), Nutrient Management (590), and Prescribed Grazing (528).

Coated seed should be seeded at the same rate as non-coated seed but the planting equipment needs to be re-calibrated.

### **PLANS AND SPECIFICATIONS**

Specifications for the establishment of forage and biomass plantings will be prepared for each site or management unit according to the criteria, considerations, and operations and maintenance described in this standard, and will be recorded on specification sheets, job sheets, or in narrative statements in the conservation plan.

The following elements will be addressed in the plan to meet the intended purpose:

- Site Preparation
- Fertilizer Application (if applicable)
- Seedbed/Planting Bed preparation
- Methods of Seeding/Planting
- Time of Seeding/Planting
- Selection of Species
- Type of legume inoculants used (if applicable)
- Seed/Plant source
- Seed analysis
- Rates of Seeding/Planting
- Supplemental Water for Plant Establishment (if applicable)
- Protection of Plantings (if applicable)

### **OPERATION AND MAINTENANCE**

The operator will inspect and calibrate equipment prior to use to insure proper rate, distribution and depth of planting material (planting too deep is a common mistake).

Growth of seedlings or sprigs shall 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.

Invasion by undesirable plants shall be controlled by cutting, using a selective herbicide, or by grazing management by manipulating livestock stocking rates, density, and duration.

Insects and diseases shall be controlled when an infestation threatens stand survival.

Evaluate forage stands each season or as needed to determine management inputs needed to achieve the desired purpose(s).

### **REFERENCES**

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Barnes, R.F., D.A. Miller, and C.J. Nelson. 1995. Forages, The Science of Grassland Agriculture, 5<sup>th</sup> Ed. Iowa State University Press, Ames

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