United States Department of Agriculture

Natural Resources Conservation Service

Forage and Biomass Planting Guide

Alabama Guide Sheet No. AL512

Definition

Establishing, re-establishing or improving stands of adapted species of grasses and legumes to provide high quality forage for livestock grazing or feed; or biomass for energy uses. Forage establishment also has benefits of controlling erosion, improving soil quality for crop rotations, reducing runoff and converting marginal cropland to alternative uses.

Planting Guidelines

Plant Selection
Select plants with growth characteristics that will provide the type of forage or biomass needed and are suited for the soil and site conditions. Tables 1, Table 2 and Figure 1 contain guidance for plants commonly grown in Alabama and the soils and conditions where they are best adapted.

Fertilizer and Lime
Fertilizer and lime should be applied at rates based on current soil test recommendations developed in accordance with Alabama Cooperative Extension System (ACES) guidance. Recommendations developed outside the ACES guidance may be used if recognized by the ACES.

Seedbed Preparation and Planting Methods
Remove rocks, stumps, and other obstructions and smooth surface irregularities that prevent surface drainage and/or interfere with safe and efficient operation of equipment.

Conventional – Chisel or subsoil to break-up plow pans and other compaction layers. Thoroughly prepare soil to a depth of 6 inches, incorporating lime and fertilizer. Smooth and firm the seedbed before planting.

Residue and tillage management - Mulch till: Prepare the seedbed with a chisel, disk or other implement to leave at least 30 percent ground cover of existing residue after planting. Insure good kill of existing vegetation prior to planting. Mix fertilizer and lime into the soil during seedbed preparation.

Residue and tillage management - No-till: Closely graze or mow existing vegetation. Use herbicides to kill existing vegetation and control weeds. Broadcast fertilizer and lime prior to planting. Plant using no-till methods and planters.

Weed Management
Evaluate each field, site, or farm to determine necessary mechanical or herbicide treatments needed to control weeds before and during establishment. Evaluate risks to surface and ground water resources if any pesticides are used. All pesticides will be used in accordance to the label directions. Minimize competition of emerging weeds with the planted species by mowing or applying recommended herbicides.

Use a combination of mechanical and chemical control to reduce a bank of “hard seeds”, such as bahiagrass seed, in the soil prior to planting. Planting an interim, annual crop may allow the use of herbicides that will help to reduce the weed seed bank. However, it may delay the planting of the forage crop. Understand plant-back restrictions before using any pesticides.

Management During Establishment
Restrict grazing and/or limit harvest until the area is well established to the desired species. Avoid grazing young plants during wet weather when they are easily pulled from the ground. Do not graze or mow perennial forages closer than 3-4 inches from the soil surface during the first growing season.

Table 1. WARM SEASON - Forage Crops Commonly Grown for Pasture or Hay in Alabama.						
FORAGE CROP[9/]	**SEEDING RATE (LBS./A)**	**SEEDING DEPTH (IN.)**	**PLANTING DATE**			**REMARKS**
			NORTH	**CENTRAL**	**SOUTH**	
GRASSES - Perennial						
BAHIAGRASS [1/]	15 - 20	¼ - ½	-	Mar - Jul 15	Feb -Nov	Adapted to sandy soils; tolerates drought. Lower seeding rates for Tift9 and Tifquick bahiagrass.
BERMUDAGRASS[8/] 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[2/]			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[3/]*	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 [4/]	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 – June15	Apr – June15	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 – June15	Apr – June15	Does not tolerate poorly drained soils. Do not continuously graze. Drought resistant. Recommended for mixtures with Big Bluestem and Indiangrass.
SWITCHGRASS 4, 7/	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 1. WARM SEASON - Forage Crops Commonly Grown for Pasture or Hay in Alabama. (con't)						
FORAGE CROP	**SEEDING RATE (LBS./A)**	**SEEDING DEPTH (IN.)**	**PLANTING DATE**			**REMARKS**
			NORTH	**CENTRAL**	**SOUTH**	
GRASSES - Annual						
MILLET, BROWNTOP, PROSO, AND FOXTAIL	Drilled 20 B-Cast 30	½ - ¾	May – Aug 1	Apr - Aug 15	Apr - Aug 15	Well drained productive soils. Drought tolerant.
MILLET, PEARL	Drilled 15 B-Cast 30	½ - 1	Apr 20 - Jul 1	Apr 15 - Jul 1	Apr - Jul 15	Adapted to clay and loam soils with good summer moisture. Avoid calcareous Blackbelt soils.
SORGHUM-SUDAN HYBRIDS	Drilled 25 B-Cast 35	½ - 1	May – Aug 1	Apr 15 - Aug 1	Apr - Aug 15	Well drained productive soils. Drought tolerant.
SORGHUM, SWEET AND FORAGE	Rows 15 B-Cast 20	1-1½	Apr 20 - May 15	Apr 20 - May 15	Apr 20 - Jul 1	Well drained productive soils. Drought tolerant.
SUDANGRASS	Drilled 25 B-Cast 35	½ - 1	May - Aug 1	May - Aug 1	May - Aug 1	Light sandy to heavy clay soils. Drought tolerant.

Table 1. WARM SEASON - Forage Crops Commonly Grown for Pasture or Hay in Alabama. (con't)						
FORAGE CROP	SEEDING RATE (LBS./A)	SEEDING DEPTH (IN.)	PLANTING DATE			Remarks
			NORTH	CENTRAL	SOUTH	
LEGUMES - Perennial						
ALFALFA	25	0- ¼	Aug 15 - Oct 1	Sep - Oct 1	Oct - Nov 1	Requires deep, fertile, well drained soils. pH 6.0-7.0
BIRDSFOOT TREFOIL	Alone 10 Mixtures 5	0- ¼	Sep - Oct 31	Sep - Oct 31	-	Requires well drained productive soils.
LESPEDEZA, SERICEA	Drill 20 B-Cast 30	¼	Mar 15–May 15 Or Jun 15 - Jul 15	Mar – May 1	Feb 15 – May 1	Drought tolerant; best on clay or loam soils; tolerant of soil acidity and low fertility; slow to establish. Use certified hulled seed.
PERENNIAL PEANUT	Rhizomes 80 Bu/ac Sprigs 120 Bu/ac	1	-	-	Dec – Feb	Adapted to well-drained sandy or sandy loam soils. Plant south of line that runs between Brundidge, Luverne, and Grove Hill. (31.72°N LAT). Best soil pH between 6.0 - 7.0.
LEGUMES - Annual						
CLOVER, ALYCE	20	¼ - ½	-	-	May 15 - Jul 15	Fertile, well drained soils
LESPEDEZA, ANNUAL	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.
Forbs - Perennial						
CHICORY (FORAGE)	5 (alone) 3 (mixes)	¼ -½	Aug - Oct 15	Aug - Oct 15	-	Best on moderately well drained soils and pH from 5.8 - 7. May be seeded into close-grazed or mowed sod. Production is spring through summer, with primary production April-May. Good management needed for stand longevity.

Table 2. COOL SEASON - Forage Crops Commonly Grown for Pasture or Hay in Alabama.						
FORAGE CROP[9/]	**SEEDING RATE (LBS./A)**	**SEEDING DEPTH (IN.)**	**PLANTING DATE**			**Remarks**
			NORTH	**CENTRAL**	**SOUTH**	
GRASSES - Perennial						
ORCHARDGRASS	20	¼ -½	Sept - Oct	--	--	Less tolerant of drought and poor drainage than tall fescue. Will not tolerate over grazing.
TALL FESCUE [5/] **(fungus friendly)**	Drilled 15 B-Cast 20	¼ -½	Sep - Nov 1	Sep - Nov 1	Sep 15 - Nov 15 [6/]	Best adapted to fertile soils with good moisture holding capacity. Fungus friendly endophyte (E+) only for forage.
GRASSES - Annual						
RYEGRASS	25	0 – ½	Aug 25 - Oct 1	Sep – Oct 15	Sep 15 – Nov 1	Best adapted to clay loam soils.
SMALL GRAINS (Grazing) **OATS** **RYE** **WHEAT** **BARLEY** **TRITICALE**	90-120	1 – 2	Aug 25 – Oct. 1	Sep – Oct. 15	Sep 15 – Nov 1	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 to winter kill; Wheat is more tolerant of heavy wet soils. Dual purpose (forage and grain) plantings should be delayed about two weeks. Hessian fly infestations favor early plantings of wheat.
Annual Forbs						
BRASSICAS (GRAZING) **RAPE** **KALE** **TURNIP** **CANOLA**	B-cast 10 Drilled 8	¼ -½	Sept - Oct	Sept - Oct	Sept - Oct	Well drained soil with pH range 5.8 - 6.8. Potential for animal health issues. Refer to: http://msucares.com/crops/forages/newsletters/09/9.pdf

Table 2. Cool Season - Forage Crops Commonly Grown for Pasture or Hay in Alabama. (con't)						
FORAGE CROP	**SEEDING RATE (LBS./A)**	**SEEDING DEPTH (IN.)**	**PLANTING DATE**			**Remarks**
			NORTH	**CENTRAL**	**SOUTH**	
LEGUMES - Perennial						
CLOVER, WHITE AND LADINO	3	0 – ¼	Sep - Oct Or Feb - Apr 1	Sep - Oct Or Feb - Apr 1	Sep 15 - Nov 15	Requires well-drained soil with pH near 6.0 - 6.5.; drought tolerant; supply potassium, phosphorus, sulfur and boron. Mostly interseeded into pastures. Manage competition for best results.
LEGUMES - Annual						
CALEY PEAS	50	½ - 1	Sep - Oct 15	Sep - Oct 15	Sep - Oct 15	Adapted to alkaline and moderately acid Black belt soil. Seeds are toxic.
CLOVER, ARROWLEAF	6	0 – ½	Aug 25 - Oct 1	Sep 1 – Oct 15	Sep 15 – Nov 1	If overseeding plant 5 weeks later. Best on well drained soils. Avoid Black Belt soils.
CLOVER, BALL	4	0 – ¼	Sep - Oct	Sep - Oct	Sep - Oct	Adapted to most soils. Reseeds well and tolerates wet soils and flooding. Mostly interseeded into pastures.
CLOVER, CRIMSON	25	0 – ½	Aug 25 - Oct 1	Sep – Oct 15	Sep 15 – Nov 1	Avoid high pH soils. Best on well drained soils. Overseed 5 weeks later.
CLOVER, RED	Drilled 8 B-Cast 15	¼ - ½	Sep 15 - Nov 15 Or Feb - Apr 1	Sep 15 - Nov 15 Or Feb - Apr 1	Sep 15 - Nov 15	Fertile well drained soils

Table 2. Cool Season - Forage Crops Commonly Grown for Pasture or Hay in Alabama. (con't)						
FORAGE CROP	**SEEDING RATE (LBS./A)**	**SEEDING DEPTH (IN.)**	**PLANTING DATE**			**Remarks**
			NORTH	**CENTRAL**	**SOUTH**	
Legumes - Annual (con't)						
CLOVER, SUBTERRANEAN	10	¼ - ½	-	Sep - Oct	Sep - Oct	Best on well-drained productive soils
VETCH, COMMON	35	1-2	Sep - Oct 15	Sep - Oct 15	Sep 15 - Nov 15	Best on well-drained soils. Certain varieties may freeze if planted late. Nova II is cold tolerant.
VETCH, HAIRY	25	1-2	Sep - Oct 15	Sep - Oct 15	Sep 15 - Nov 1	Best on Well-drained soils

Alabama Planting Guide for Forages and Legumes, http://www.aces.edu/pubs/docs/A/ANR-0149/ANR-0149.pdf ; http://www.aces.edu/pubs/docs/A/ANR-0150/ANR-0150.pdf

1/ Bahiagrass plantings (variety information excerpted from ACES recommendations).

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

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

3/ Drill – Drilled; B-Cast – Broadcast; and PLS = Pure Live Seed. PLS = % Germination X % Purity (Refer to the links for the Alabama Planting Guides for Forage Grasses and Legumes above).

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

5/ Only endophyte friendly 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.

7/ May be planted for biomass production purposes.

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

9/ 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 amount of coating or inert content per cent.

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

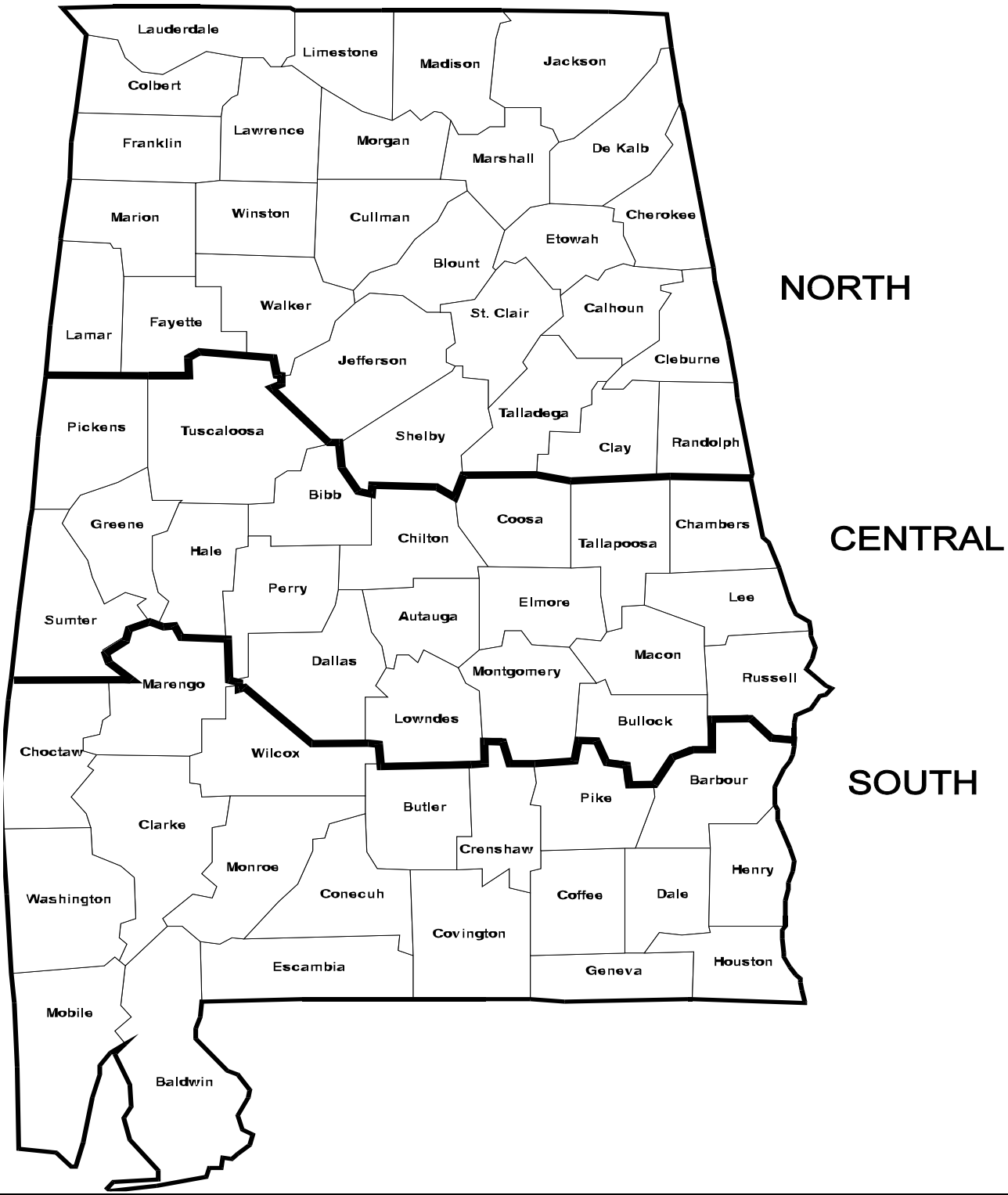

Figure 1