

FORAGE SUITABILITY GROUP

Loamy and Clayey Soils on Rises, Knolls, and Ridges of Mesic Uplands

FSG No.: G133AA322FL

Major Land Resource Area (MLRA 133A):

Southern Coastal Plain

Map Unit List

- Compass loamy sand, 5 to 8 percent slopes
- Dothan fine sandy loam, 5 to 8 percent slopes
- Dothan loamy fine sand, 5 to 8 percent slopes
- Dothan loamy fine sand, 5 to 8 percent slopes, eroded
- Dothan loamy sand, 5 to 8 percent slopes
- Dothan loamy sand, 8 to 12 percent slopes
- Goldsboro loamy sand, 5 to 8 percent slopes
- Malbis fine sandy loam, 5 to 8 percent slopes
- Norfolk loamy fine sand, 5 to 8 percent slopes
- Norfolk loamy sand, clayey substratum, 5 to 8 percent slopes
- Notcher fine sandy loam, 5 to 8 percent slopes
- Notcher-Maubila complex, 5 to 8 percent slopes
- Notcher-Maubila complex, 8 to 12 percent slopes
- Perdido sandy loam, 5 to 8 percent slopes
- Poarch sandy loam, 5 to 8 percent slopes
- Tifton fine sandy loam, 5 to 8 percent slopes
- Tifton gravelly loamy fine sand, 5 to 8 percent slopes, eroded
- Tifton loamy sand, 5 to 8 percent slopes
- Dothan loamy sand, 5 to 8 percent slopes

Adapted Species List

The native forage species listed are considered adapted to grow on the soils in this group at their natural pH levels. All introduced grass and legume species will need native pH raised to min. 5.5 (unless noted) for best production. All forages listed are adapted to dryland conditions. Consult with state extension service for current cultivar recommendations

[\(http://agronomy.ifas.ufl.edu/foragesofflorida/\)](http://agronomy.ifas.ufl.edu/foragesofflorida/).

Perennial Species:

Grasses

Warm season (Introduced)

- Bahiagrass (*Paspalum notatum*, pH 5.0 – 6.5)
- Bermudagrass (*Cynodon dactylon*)

Warm season (Native)

- Big Bluestem (*Andropogon gerardii*)

- Chalky Bluestem (*Andropogon virginicus* var. *glaucus*)
- Splitbeard Bluestem (*Andropogon ternarius*)
- Yellow Indiangrass (*Sorghastrum nutans*)
- Lopsided Indiangrass (*Sorghastrum secundum*)
- Switchgrass (*Panicum virgatum*)
- Eastern Gamagrass (*Tripsacum dactyloides*)

Legumes

Warm season

- Rhizoma Perennial Peanut (*Arachis glabrata*, pH 5.8-7.0)

Annual Species:

Grasses

Warm season

- Browntop Millet (*Urochloa ramosa*; =*Panicum ramosum*)
- Pearl Millet (*Pennisetum glaucum*)
- Sorghum (*Sorghum bicolor*; includes forage sorghums, sudangrass, and their hybrids)

Cool season

- Ryegrass, annual (*Lolium perenne* ssp. *multiflorum*; =*L. multiflorum*)
- Oat (*Avena sativa*)
- Rye (*Secale cereale*)
- Wheat (*Triticum aestivum*)
- Triticale (x *Triticosecale*)

Legumes

Warm season

- Hairy Indigo (*Indigofera hirsuta*)
- Alyceclover (*Alysicarpus vaginalis*)
- Cowpea (*Vigna unguiculata*)

Cool season

- White Clover (*Trifolium repens*, pH 6.0-7.5)
- Red Clover (*Trifolium pratense*, pH 6.0 – 8.0)
- Crimson Clover (*Trifolium incarnatum*)
- Arrowleaf Clover (*Trifolium vesiculosum*)
- Austrian Winter Pea (*Pisum sativum*, pH6.0-7.5)
- Hairy Vetch (*Vicia villosa*)
- Medics (*Medicago* spp., pH 5.5-8.0)
- Alfalfa (*Medicago sativa*, pH 6.5-7.5)

Seasonal and Total Production Estimates

Warm season grass production should be similar to FSG G133AA321FL during times of normal summer rainfall, but dry periods will effect plant growth more quickly due to increased runoff and less infiltration associated with steeper slope. For this reason, total seasonal yields will be slightly lower than FSG G133AA321FL. If irrigation is available, see FSG G133AA321 for production information.

Cool season annual grasses should practical most years for all classes of livestock. Additionally, overseeding annual ryegrass on a bahiagrass pasture is recommended for this forage suitability group.

As with the annual cool season grasses, many clovers and other legumes should be considered on this FSG. Grazing management for seed production also is important for several clover species. White and red clovers are short-

term perennials in Florida, but function more like annuals. Other species, like crimson clover, reseed well if they are managed properly. Due to bloat issue, clovers should be used only in mixtures with cool season grasses, overseeded on bahiagrass pastures, or when a bloat preventative supplement is fed.

Initial growth of perennial warm season grasses and legumes or establishment of warm season annual grasses may be delayed in the spring due to low rainfall. Once normal summer rainfall begins, plant production should resume. Warm season legumes such as hairy indigo or alyceclover can be planted in prepared seedbeds. They also can be oversown onto warm season grasses in this forage suitability group, although fertilization (no N fertilizer) and grazing management needs to favor legume establishment and persistence. Additional lime may be needed to maintain a pH of 5.5 to 6.0.

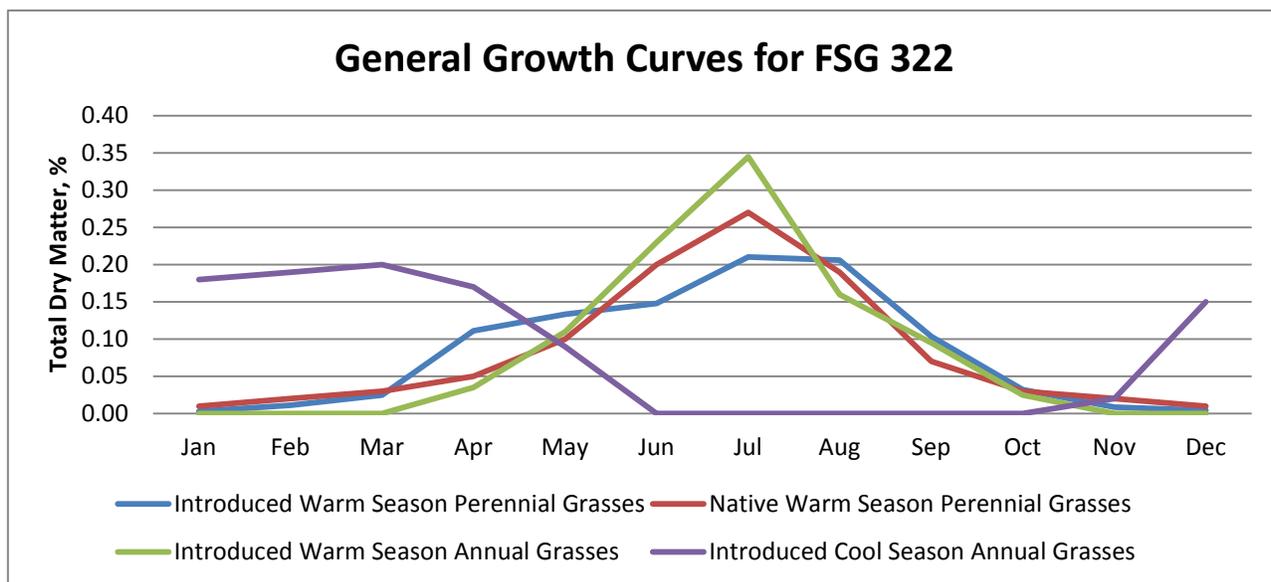
Expected Range in Dry Matter Production and Animal Unit Months (AUM) for Different Forages†				
Forage	Range in Dry matter, lbs/acre		Range in AUM/acre‡	
Bahiagrass, Argentine (100-200 lb N/A) ^{5,6,7,#}	3,900	10,900	2.5	7.0
Bahiagrass, Pensacola (100-200 lb N/A) ^{5,6,7}	3,700	10,150	2.4	6.5
Bahiagrass, Tifton 9 (100-200 lb N/A) ^{5,6,7}	6,100	11,500	3.9	7.4
Bermudagrass, Tifton 85 (100-200 lb N/A) ^{5,6,7}	5,600	11,700	3.6	7.5
Bermudagrass, Florakirk (100-200 lb N) ^{2,5,6,7}	5,900	11,300	3.8	7.2
Bermudagrass, Coastal (100-200 lb N/A) ^{5,6,7,10}	3,200	10,800	2.1	6.9
Eastern Gamagrass, Pete (100-300 lb N/A) ^{5,6,7}	3,600	6,750	2.3	4.3
Big Bluestem (100-300 lb N/acre) ^{5,6,7}	800	1,800	0.5	1.2
Ryegrass (120 lb N/A) ^{3,4}	3,200	7,200	2.0	4.6
Small Grain Forage (oat, wheat, etc.; 120 lb N/acre) ¹	5,400	7,200	3.5	4.6
Pearl Millet (200 lb N/acre) ^{5,6,7}	7,200	10,000	4.6	6.4
Sorghum - Sudangrass (200 lb N/acre) ^{5,6,7}	9,000	11,700	5.8	7.5
Rhizoma Perennial Peanut ²	3,150	5,700	2.0	3.6
Alfalfa ^{8,9}	8,100	11,700	5.2	7.5
Cool-Season Clovers, overseeded on bahiagrass ^{4,6,7}	250	1,100	0.2	0.7
Cool-Season Clovers, prepared seedbed ^{4,6}	1,200	3,600	0.8	2.3
Alyceclover ⁴	1,350	3,150	0.9	2.0
Hairy Indigo ⁴	1,800	5,400	1.2	3.5

†Production data based on 10% decrease from FSG G133AA321FL due to slope.

‡Animal Unit Month based on 50% grazing efficiency and 2.6% intake per day.

#Superscript numbers refer to references.

Production Curves:



Dry Matter Production Distribution by Month												
Forage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Introduced Warm Season Perennial Grasses												
Bahiagrass (Pensacola)		0.01	0.03	0.14	0.14	0.17	0.19	0.17	0.14	0.03		
Bahiagrass (Argentine)		0.01	0.04	0.08	0.09	0.18	0.25	0.22	0.11	0.02		
Bermudagrass (Tifton 85)		0.02	0.02	0.13	0.15	0.13	0.21	0.22	0.08	0.03	0.01	0.00
Bermudagrass (Coastal)	0.01	0.01	0.02	0.13	0.14	0.13	0.21	0.22	0.09	0.02	0.01	0.01
Native Warm Season Perennial Grasses												
Native Warm Season Grasses (Generic)	0.01	0.02	0.03	0.05	0.1	0.2	0.27	0.19	0.07	0.03	0.02	0.01
Eastern Gamagrass	0.01	0.02	0.04	0.16	0.18	0.2	0.16	0.13	0.06	0.02	0.01	0.01
Switchgrass	0.01	0.02	0.03	0.07	0.15	0.19	0.2	0.19	0.09	0.03	0.01	0.01
Legumes or Legume/Grass Combinations												
Rhizoma Perennial Peanut			0.05	0.15	0.14	0.15	0.20	0.18	0.14			
White Clover/Argentine Bahiagrass	0.01	0.02	0.07	0.14	0.17	0.21	0.18	0.12	0.09	0.02		
Cool Season Annual Grasses												
Annual Ryegrass	0.18	0.18	0.2	0.18	0.1						0.02	0.14
Small Grains (Wheat, Rye, etc.)	0.18	0.2	0.2	0.16	0.08						0.02	0.16
Warm Season Annual Grasses												
Sorghum-Sudangrass					0.07	0.2	0.3	0.25	0.15	0.03		
Millet (Pearl and Browntop)				0.07	0.15	0.26	0.39	0.07	0.04	0.02		

Physiographic Features

Dominantly very deep, sloping to very steep, moderately well drained or well drained soils formed in loamy and/or clayey marine deposits. These soils occur on shoulders and back slopes of marine terraces. Diagnostic subsurface horizon is an argillic horizon above 20 inches. The organic matter content of the surface layer is dominantly low or very low. Unless limed, the reaction in the surface layer ranges from extremely acid to slightly acid.

Climatic Features

Freeze-free period (>28° F 9 years in 10 at least):
 averages 255 d (range 243-273 d)

Length of growing season (>32° F 9 years in 10 at least): averages 224 d (range 205-247 d)

Annual minimum temperature (° F in month of January):
 average 38.2 (range 36.7-39.7)

USDA Plant Hardiness Zone:
 8b (15-20° F, Tallahassee)

Mean annual precipitation (inches):
 averages 62.14 (range 53.18-69.48)

Group Soil Properties (Statewide)

Percent Slope: 5 to 12 percent, but ranges to 60 percent

Surface Texture: Loamy sand, loamy fine sand, sandy loam, fine sandy loam, or their gravelly analogs. A few members are clay loam or fine sand.

Sand Content of Surface Layer: 37 to 95 percent

Clay Content of Surface Layer: 2 to 33 percent

Organic Matter Content of Surface Layer: 0.5 to 4 percent

Cation Exchange Capacity of Surface Layer (meq/100g):
 0.3 to 5.9

Effective Cation Exchange Capacity of Surface Layer (meq/100g): 0.3 to 5.7

Bulk Density of Surface Layer (g/cc): 1.2 to 1.65

Saturated Hydraulic Conductivity of Surface Layer:
 Moderate to rapid

Soil Reaction of Surface Layer: 3.5 to 6.5 (unless limed)

Available Water Capacity (0 to 30 inches): 0.3 to 1.7 inch per inch

Depth to Finer Textured Material: Less than 20 inches

Depth to Bedrock: Greater than 80 inches. A few members have bedrock between 60 and 80 inches.

Drainage Class (Agronomic): Moderately well, well

Depth to Seasonal High Water Table (during wet periods): 3 to 5 feet

Flooding: None

Ponding: None

Monthly precipitation (inches) and temperature (F):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip avg	4.80	6.37	3.78	4.45	6.36	7.04	6.32	5.24	3.31	4.16	4.09	4.80
Avg Min	38.2	40.8	46.9	99.8	60.8	67.8	70.7	70.3	66.4	54.6	46.5	41.3
Avg Temp	51.6	54.9	61.2	67.0	74.4	80.2	82.1	81.8	78.7	69.9	61.5	54.4
Avg Max	62.2	66.1	72.5	78.7	85.3	90.1	91.5	91.0	88.0	80.3	71.9	64.5

Climate Station Locations (averages from 1971 to 2000; see Appendix 1)

FSG Documentation

Inventory Data References:

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2. Dunavin, LS. 1996. Fertility Trials with Florakirk Bermudagrass and Chicory and Harvest Date Trial with Florigraze Rhizoma Peanut. Univ. Florida, IFAS, Agric. Exp. Stn., WFREC Res. Rep. WF96-4.
3. ----- . 1997. Cool-Season Forage Trials, 1996-1997. Univ. Florida, IFAS, Florida Agric. Exp. Stn., WFREC Res. Rep. WF97-5.
4. -----, and C.G. Chambliss. 2000. Cool-Season Forage Variety Trials, WFREC, Jay, FL 1999-2000. Univ. Florida, IFAS, Florida Exp. Stn. SS-AGR-85.
5. -----, and D.W. Gorbet. 2000. Variety and Other Trials of Several Forage Grasses and Legumes, Temperate Corn and Grain Sorghum. Univ. Florida, IFAS, Florida Agric. Exp. Stn., WFREC Res. Rep. WF00-03.
6. ----- . 2001. Variety and Other Trials of Several Forage Grasses and Legumes, Temperate Corn and Grain Sorghum. Univ. Florida, IFAS, Agric. Exp. Stn., WFREC Res. Rep. Rep. WF01-03.
7. ----- . 2002. Variety and Other Trials of Several Forage Grasses and Legumes and Grain Sorghum. Univ. Florida, IFAS, Florida Agric. Exp. Stn., WFREC Res. Rep. WF02-03.
8. -----, H.A. Peacock, and D.W. Gorbet. 1991. Variety Trials of Warm-Season Perennial Grasses, Grain Sorghum, Millet and Sorghum X Sudangrass Hybrids, and Alfalfa, 1990. Univ. Florida, IFAS, Florida Agric. Exp. Stn., Jay, AREC Res. Rep. WF91-2.
9. ----- . 1993. Variety Trials of Warm-Season Perennial Grasses, Grain Sorghum, Summer Annual Grasses, Alfalfa, and Summer Legumes. Univ. Florida, IFAS, Florida Agric. Exp. Stn., Jay AREC Res. Rep. Jay, AREC Res. Rep. WF93-2.
10. Rhoads, F.M., and R.L. Stanley, Jr. 1989. Coastal Bermudagrass Yield, Soil-pH, and Ammonium Sulfate-Nitrate Rates. Univ. Florida, IFAS, Florida Agric. Exp. Stn., NFREC-Quincy Res. Rep. 89-9.

State Correlation: Pending

Forage Suitability Group Approval:



Rosalind Moore, Acting State Resource Conservationist



Tom Weber, State Soil Scientist

Appendix 1: Climate Station Locations		
COOP ID (FL=08)	Location	County
1544	Chipley	Washington
1986	Crestview	Okaloosa
2220	De Funiak Springs	Walton
3230	Fountain	Bay
5275	Madison	Madison
5793	Milton Exp. Stn.	Santa Rosa
5879	Monticello	Jefferson
6240	Niceville	Okaloosa
7429	Quincy	Gadsden
8758	Tallahassee Mun. Air.	Leon