

## FORAGE SUITABILITY GROUP

### Sandy Over Loamy Soils on Flats and Rises of Mesic Uplands

FSG No.: G152AA231FL

#### Major Land Resource Area (MLRA 152A):

Eastern Gulf Coast Flatwoods

#### Map Unit List

- Leefield loamy fine sand
- Leefield loamy sand, 0 to 5 percent slopes
- Leefield sand
- Ocilla sand
- Stilson fine sand
- Stilson fine sand, 0 to 3 percent slopes
- Stilson loamy fine sand, 0 to 5 percent slopes
- Stilson sand, 0 to 5 percent slopes
- Stilson sand, 5 to 8 percent slopes
- Wampee fine sand, 0 to 5 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. Irrigation is not recommended in these soils, and 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*)
  - Yellow Indiangrass (*Sorghastrum nutans*)
  - Lopsided Indiangrass (*Sorghastrum secundum*)
  - Switchgrass (*Panicum virgatum*)

##### Legumes

- Warm season (Introduced)
  - Rhizoma Perennial Peanut (*Arachis glabrata*, pH 5.8-7.0; additional management required for high water table)

#### 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
  - Alyceclover (*Alysicarpus vaginalis*)
  - Hairy Indigo (*Indigofera hirsuta*)
  - 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*, pH 6.0-7.5)
  - Hairy Vetch (*Vicia villosa*)
  - Medics (*Medicago* spp., pH 5.5-8.0)

#### Seasonal and Total Production Estimates

Although seasonal and total forage production may be limited during low rainfall periods, degree and duration of drought effects should be less than for FSG G152AA131 due loamy subsoils in this group. Soils in this group have moderate water holding capacity and a seasonal high water table ranging from 1 - 3 foot during wet periods.

For this FSG, use of cool season forages such as annual ryegrass, oats, and wheat planted in a prepared seedbed as a winter feed supply for the whole cow herd should be practical most years. Overseeding annual ryegrass on a bahiagrass pasture should be a reasonable option most years. If irrigation is available, see FSG G152AA331 for production information.

Several clovers and hairy vetch are reasonably adapted throughout the MLRA on this FSG. Grazing management and fertilization need to favor the legume component for persistence. Even then, reseeding every other year may be necessary. White clover and red clover, normally considered perennial species, function more as annuals in Florida and are heavily dependent upon reseeding to persist. Due to bloat issue, clovers should be used only in mixture, overseeded onto warm season grasses, or when a bloat preventative supplement is fed.

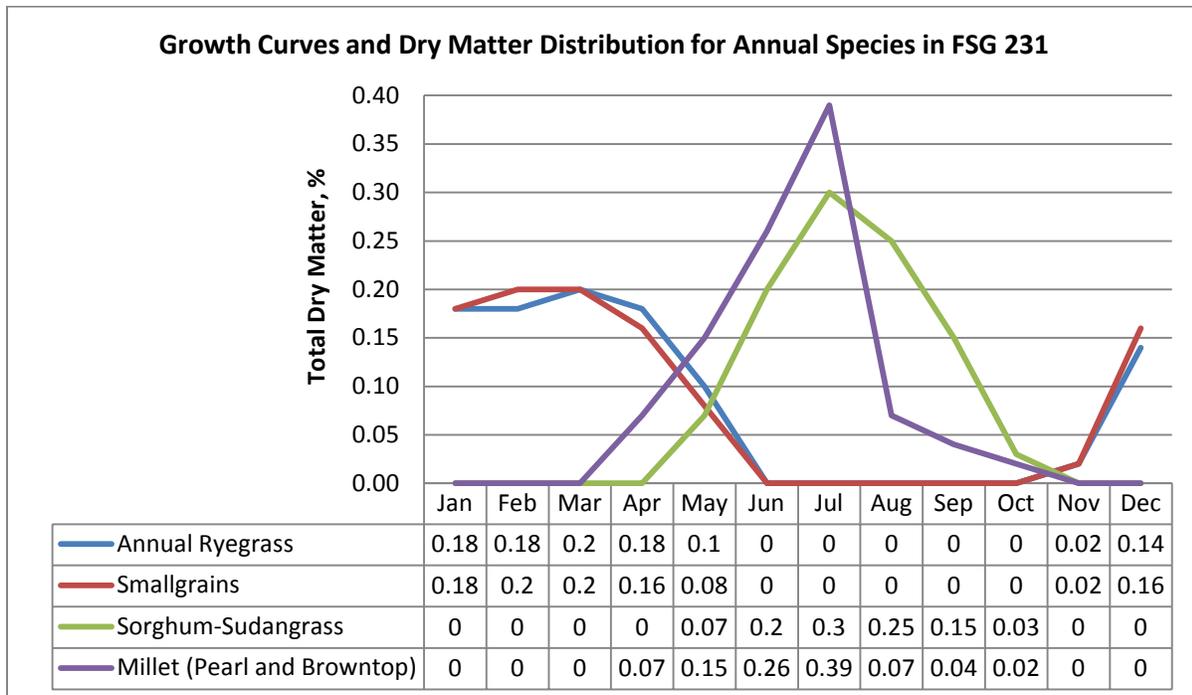
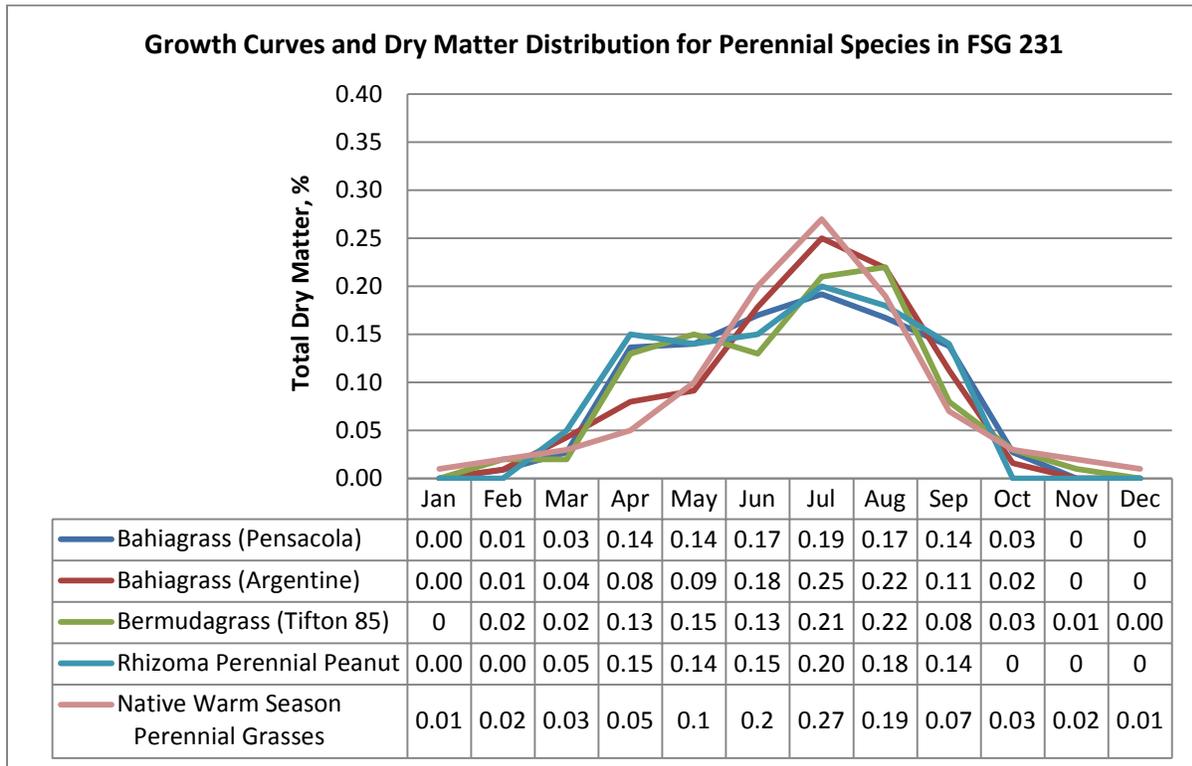
Initial growth of perennial warm season grasses and legumes or establishment of warm season annual grasses or legumes may be delayed in the spring due to low rainfall. Often production of perennial species also dips during the April/May dry period. Once normal summer rainfall begins, plant production should resume. Annual legumes such as hairy indigo or alyceclover can be oversown on bahiagrass stands 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) <sup>5,6,7#</sup>	4,400	10,900	2.8
Bahiagrass, Pensacola (100-200 lb /A) <sup>5,6,7</sup>	4,100	10,150	2.6	6.5
Bahiagrass, Tifton 9 (100-200 lb N/A) <sup>5,6,7</sup>	6,800	11,500	4.3	7.4
Bermudagrass, Tifton 85 (100-200 lb N/A) <sup>5,6,7</sup>	6,300	11,700	4	7.5
Bermudagrass, Florakirk (100-200 lb N) <sup>2,5,6,7</sup>	6,300	11,275	4.2	7.2
Bermudagrass, Coastal (100-200 lb N/A) <sup>5,6,7,8</sup>	3,600	10,800	2.5	6.9
Eastern Gamagrass, Pete (100-300 lb N/A) <sup>5,6,7</sup>	4,000	6,750	2.5	4.3
Big Bluestem (100-300 lb N/acre) <sup>5,6,7</sup>	900	1,800	0.6	1.2
Ryegrass (120 lb N/A) <sup>3,4</sup>	3,500	7,200	2.2	4.6
Small Grain Forage (oat, wheat, etc.; 120 lb N/acre) <sup>1</sup>	6,000	7,200	3.8	4.6
Pearl Millet (200 lb N/acre) <sup>5,6,7</sup>	8,000	10,010	5.1	6.4
Sorghum - Sudangrass (200 lb N/acre) <sup>5,6,7</sup>	10,000	11,700	6.3	7.5
Rhizoma Perennial Peanut <sup>2</sup>	3,500	5,670	2.2	3.6
Cool-Season Clovers, overseeded on bahiagrass <sup>4,6,7</sup>	300	1,080	0.2	0.7
Cool-Season Clovers, prepared seedbed <sup>4,6</sup>	1,300	3,600	0.8	2.3
Alyceclover <sup>4</sup>	1,500	3,150	0.9	2.0
Hairy Indigo <sup>4</sup>	2,000	5,400	1.3	3.5

†Production data based on 10% decrease in upper range values for FSG G152AA321FL.

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

#Superscript numbers refer to references.



## Physiographic Features

Dominantly very deep, nearly level to sloping, somewhat poorly drained or moderately well drained soils formed in 20 to 40 inches of sandy marine deposits over loamy marine deposits. These soils occur on summits, shoulders, and back slopes of marine terraces. Diagnostic subsurface horizon is an argillic horizon. The organic matter content of the surface layer is dominantly low or medium. 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 268 d (range 243-295 d)

**Length of growing season (>32° F 9 years in 10 at least):** averages 235 d (range 206-267 d)

**Annual minimum temperature (° F in month of January):**  
 averages 53.7 (range 49.0-64.5)

**USDA Plant Hardiness Zone:**  
 8b (15-20° F, Tallahassee)  
 9a (20-25° F, Gainesville)

**Mean annual precipitation (inches):**  
 averages 60.77 (range 52.83-69.20)

## Soil Properties

**Percent Slope:** Dominantly 0 to 8 percent

**Surface Texture:** Fine sand, sand, loamy fine sand, loamy sand

**Sand Content of Surface Layer:** 79 to 97 percent

**Clay Content of Surface Layer:** 0.8 to 10 percent

**Organic Matter Content of Surface Layer:** 0.5 to 4 percent

**Cation Exchange Capacity of Surface Layer (meq/100g):**  
 1.1 to 5.5

**Effective Cation Exchange Capacity of Surface (meq/100g):** 0.2 to 3.4

**Bulk Density of Surface (g/cc):** 1.38 to 1.58

**Saturated Hydraulic Conductivity of Surface Layer:** Rapid

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

**Available Water Capacity (0 to 30 inches):** 0.4 to 1.5 inch per inch

**Depth to Finer Textured Material:** 20 to 40 inches

**Depth to Bedrock:** Greater than 80 inches. A few members have bedrock between 40 and 80 inches.

**Drainage Class (Agronomic):** Somewhat poorly, moderately well

**Depth to Season High Water Table (during wet periods):**  
 1 to 3 feet below the surface

**Flooding:** None. A few members are rarely flooded with brief duration.

**Ponding:** None

## Monthly precipitation (inches) and temperature (F):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Precip avg</b>	5.25	4.28	5.67	3.52	3.78	6.20	7.82	7.44	5.82	3.46	3.54	3.75
<b>Avg Min</b>	40.5	43.0	48.9	83.7	62.0	66.9	71.6	71.4	68.1	57.1	49.0	43.2
<b>Avg Temp</b>	53.7	56.7	62.7	68.1	75.3	80.8	82.6	82.3	79.4	70.6	62.6	55.8
<b>Avg Max</b>	64.1	67.3	73.3	79.1	85.6	90.1	91.3	90.9	88.3	81.2	73.3	66.2

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

## FSG Documentation

### Inventory Data References:

1. Barnett, R.D., D.L. Wright, A.R. Soffes Blount, and R.L. Stanley. 1997. Small grain production recommendations for the 1997-98 growing season. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Florida Cooperative Extension Service, SS-AGR-46.
2. Dunavin, L.S. 1996. Fertility trials with Florakirk bermudagrass and chicory and harvest date trial with Florigraze rhizoma peanut. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station, West Florida Research and Education Center Research Report, WF96-4.
3. ----- . 1997. Cool-season forage trials, 1996-1997. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station, West Florida Research and Education Center Research Report, WF97-5.
4. -----, and C.G. Chambliss. 2000. Cool-season forage variety trials, WFREC, Jay, FL 1999-2000. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station, SS-AGR-85.
5. -----, and D.W. Gorbet. 2000. Variety and Other Trials of several forage grasses and legumes, temperate corn and grain sorghum. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station, West Florida Research and Education Center Research Report, WF00-03.
6. ----- . 2001. Variety and other trials of several forage grasses and legumes, temperate corn and grain sorghum. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station, West Florida Research and Education Center Research Report, WF01-03.
7. ----- . 2002. Variety and other trials of several forage grasses and legumes and grain sorghum. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station, West Florida Research and Education Center Research Report, WF02-03.
8. Rhoads, F.M., and R.L. Stanley, Jr. 1989. Coastal bermudagrass yield, soil-pH, and ammonium sulfate-nitrate rates. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station, North Florida Research and Education Center-Quincy Research Report 89-9

State Correlation: (NA)

### Forage Suitability Group Approval:



Greg Hendricks, State Resource Conservationist



Tom Weber, State Soil Scientist

<b>Appendix 1: Climate Station Locations</b>		
<b>COOP ID (FL=08)</b>	<b>Location</b>	<b>County</b>
3230	Fountain	Bay
6842	Panama City	Bay
2008	Cross City	Dixie
3855	Pensacola Sherman NAS	Escambia
6997	Pensacola Regional Air.	Escambia
211	Apalachicola	Franklin
9566	Wewahitchka	Gulf
5539	Mayo	LaFayette
8758	Tallahassee Mun. Air.	Leon
9120	Usher Tower	Levy
5275	Madison	Madison
6240	Niceville	Okaloosa
3841	Whiting Field NAS	Santa Rosa
5099	Live Oak	Suwannee
7025	Perry	Taylor
8565	Steinhatchee	Taylor