

## FORAGE SUITABILITY GROUP

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

FSG No.: G138XA231FL

**Major Land Resource Area (MLRA 138):** North-Central Florida Ridge

#### Map Unit List

- Leefield fine sand
- Ocilla fine sand, 0 to 5 percent slopes
- Ocilla loamy fine sand, 0 to 5 percent slopes
- Wampee 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/>).

#### 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 G138XA131 due to 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 G138XA331 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

mixtures, 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 oversewn 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.

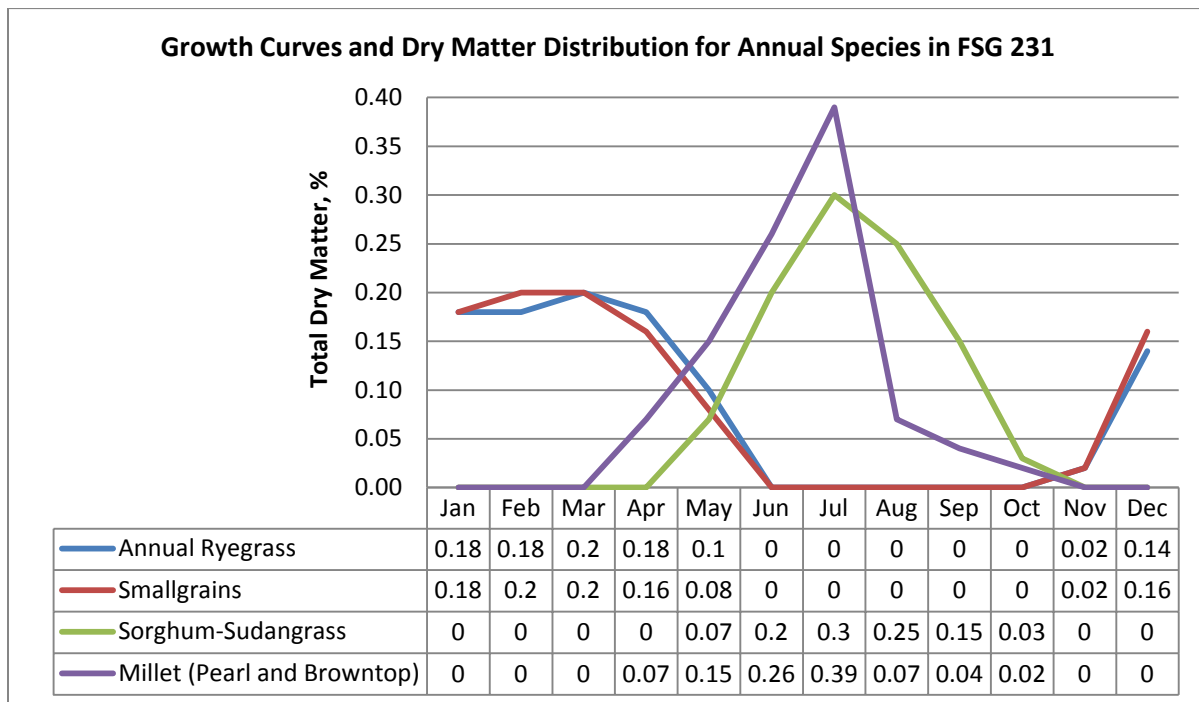
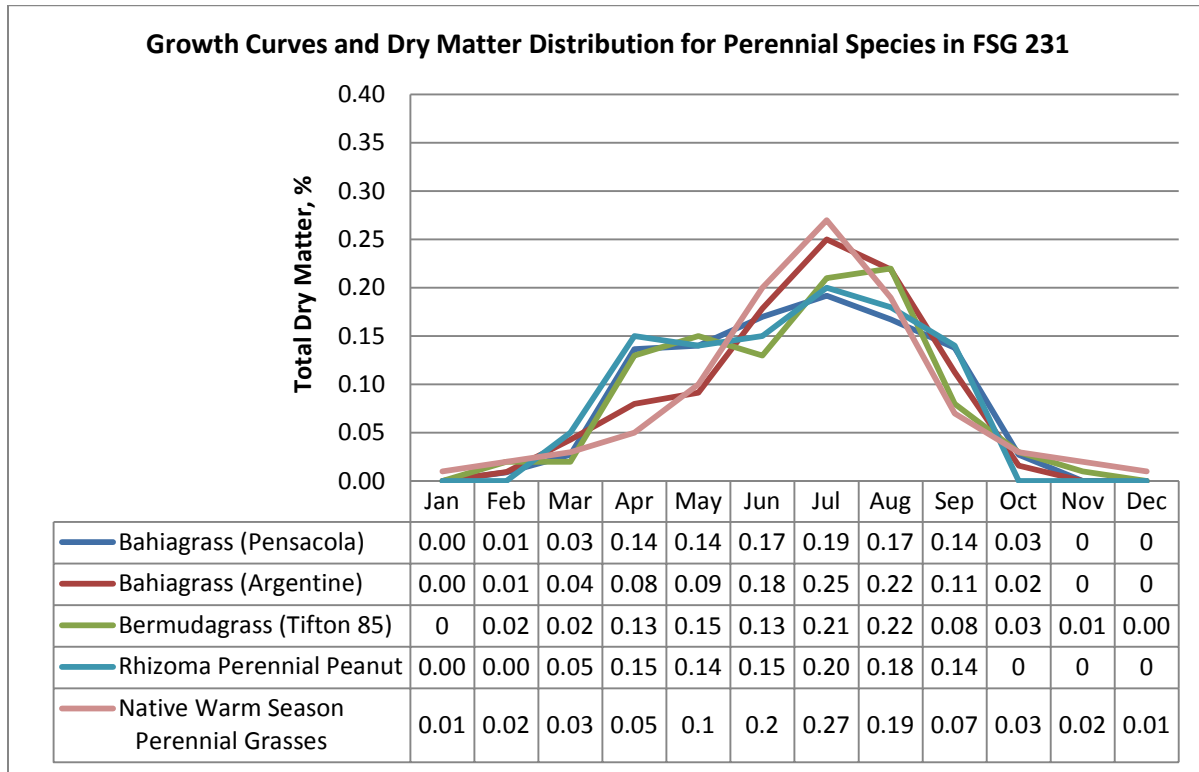
Expected Range in Dry Matter Production and Animal Unit Months (AUM) for Different Forages†				
Forage	Range in Dry matter, lbs/acre		Range in AUM/acre‡	
	Bahiagrass, Argentine (100-200 lb N/A) <sup>5,6,7#</sup>	4,400	10,900	2.8
Bahiagrass, Pensacola (100-200 lb N/A) <sup>5,6,7</sup>	4,100	10,150	2.6	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
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
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
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 G138XA321FL.

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

#Superscript numbers refer to references.

**Production Curves:**



## 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 sub-surface 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 270 d (range 266-278 d)

**Length of growing season (>32° F 9 years in 10 at least):** averages 234 d (range 225-247 d)

**Annual minimum temperature (° F in month of January):**  
 averages 41.1 (range 38.6-43.5)

**USDA Plant Hardiness Zone:**  
 8b (15-20° F, Jacksonville)  
 8a (10-15° F, Glen St. Mary)

**Mean annual precipitation (inches):**  
 averages 54.40 (range 52.24-59.65)

## 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>	4.89	3.82	5.09	3.28	3.27	6.23	6.84	7.12	4.86	2.98	2.69	3.34
<b>Avg Min</b>	41.1	43.6	49.4	54.3	62.0	68.5	71.1	70.8	67.9	57.7	50.0	43.2
<b>Avg Temp</b>	55.1	56.3	62.3	67.5	74.4	79.6	81.6	81.2	78.4	69.8	62.4	55.4
<b>Avg Max</b>	65.7	68.9	75.2	80.5	86.8	90.7	92.0	91.5	88.9	82.1	74.7	67.6

## 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. Univ. Florida, IFAS, Florida Coop. Ext. Ser. SS-AGR-46.
2. Dunavin, L.S. 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. 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. 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: (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>
4731	Lake City	Columbia
4394	Jasper	Hamilton
5539	Mayo	LaFayette
9120	Usher Tower	Levy
5275	Madison	Madison
5099	Live Oak	Suwannee