

FORAGE SUITABILITY GROUP

Sandy or Sandy Over Loamy Soils on Stream Terraces or Flood Plains

FSG No.: G138XA134FL

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

Map Unit List

- Albany fine sand, occasionally flooded
- Electra variant fine sand, occasionally flooded
- Garcon fine sand, 0 to 5 percent slopes, occasionally flooded

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 the pH level 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 or germplasm 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*, northern half of MLRA)
- Yellow Indiangrass (*Sorghastrum nutans*, northern half of MLRA)
- Lopsided Indiangrass (*Sorghastrum secundum*)
- Switchgrass (*Panicum virgatum*)

Legumes

Warm season

- 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 sorghum, 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*)

Seasonal and Total Production Estimates

Soils in this group are similar to those in FSG G138XA131FL with the exception that they are subject to flooding. In most cases, the flooding duration would not be expected to kill adapted perennial species, but may result in stand loss for annual forage species. Additionally, scouring effects can be expected to be more detrimental to annual than perennial species. Planners should consider individual site characteristics when making planting recommendations.

Soils in this group have moderate water holding capacity and a seasonal high water table ranging from 1 - 3 foot during wet periods. Total production of all forage species is expected to be higher than FSG G138XA111FL due to increased available water during the growing season, but lower than FSG G138XA141FL due to lower water availability at other times of the year.

Production of cool season forage planted in a prepared seedbed is usually at the middle to lower end of the production range due to droughty nature of the soils in this FSG. Generally cool season forages will only produce sufficient winter grazing in years with average and above average rainfall (El Niño winters) for specialized management uses such as creep grazing, early weaning, or purebred operations. Overseeding annual ryegrass on a bahiagrass pasture is not recommended for this FSG, due to excessive competition from bahiagrass for soil moisture and substantial moisture requirement from ryegrass. If irrigation is available, see FSG G138XA334FL

for species and production information although yields will be at the lower end of the range listed.

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.

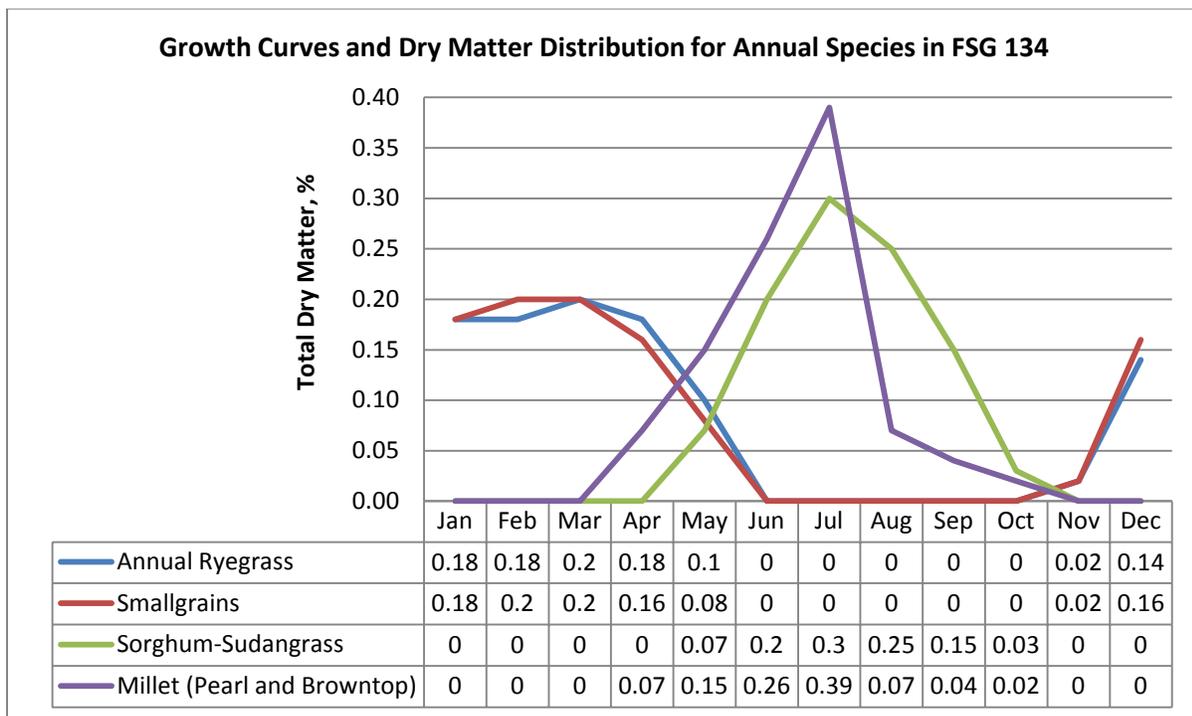
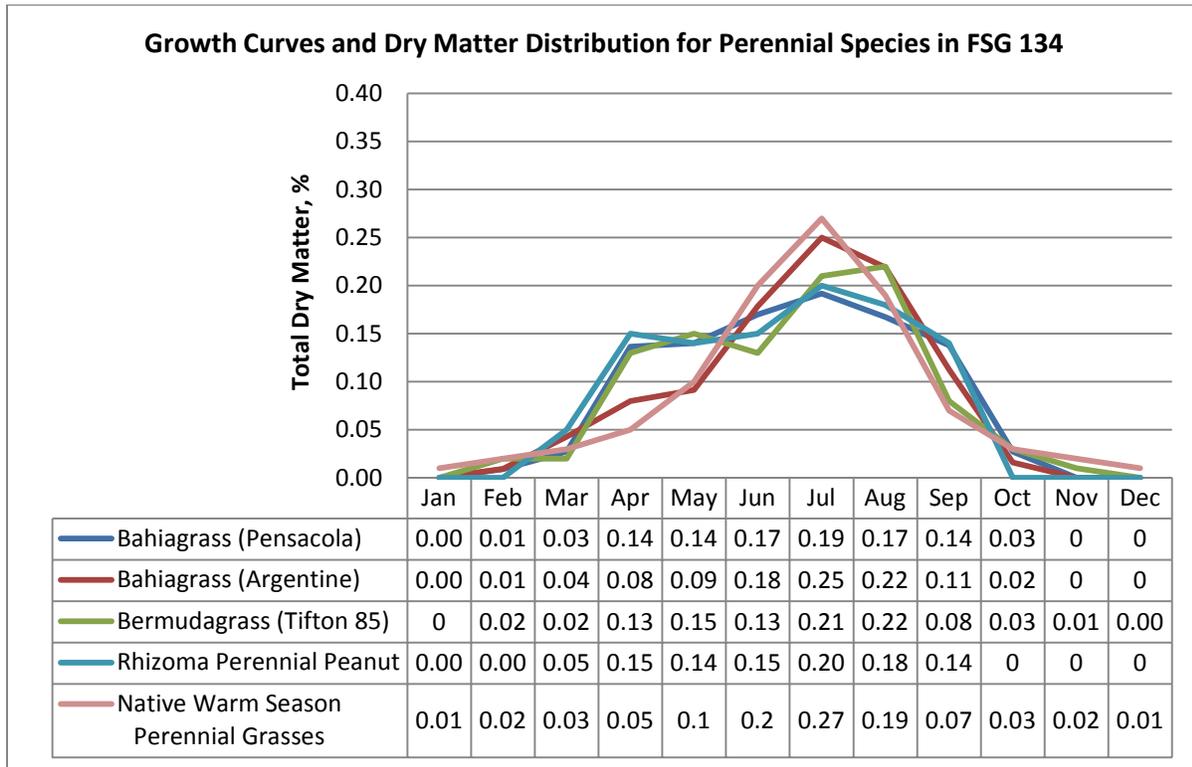
Expected Range in Dry Matter Production and Animal Unit Months (AUM) for Different Forages†				
Forage	Range in Dry Matter, lbs/acre		Range in AUM/acre‡	
Bahiagrass (0 lb N/acre) ^{9,10#}	2,250	4,500	1.4	2.9
Bahiagrass (60 lb N/acre) ¹⁰	5,250	7,500	3.4	4.8
Bermudagrass, (200 lb N/acre) ⁶	10,000	14,000	6.3	8.9
Rhizoma Perennial Peanut ⁷	8,000	14,000	5.1	8.9
Pearl Millet (225 to 300 lb N/acre) ^{1,4}	6,000	12,000	3.8	7.6
Sorghum X Sudangrass (225 to 300 lb N/acre) ^{1,4}	10,000	24,000	6.3	15.2
Small Grains (oat, wheat, etc.; 120 lb N/acre) ³	3,780	5,040	2.4	3.2
Annual Ryegrass ^{2,8}	1,500	5,250	1.0	3.4
Hairy Indigo ⁵	1,500	2,250	1.0	1.4

†Production data based on 25% decrease for all warm season forages except for bermudagrass, rhizoma perennial peanut, and warm season annual grasses and 10% decrease for small grains from FSG G138XA141FL.

‡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 or gently sloping, somewhat poorly drained or moderately well drained soils formed in sandy alluvial or marine deposits. These soils occur on flats on flood plains, or treads and risers of stream terraces. They have more than 40 inches of fine sand. Diagnostic subsurface horizon is an argillic horizon or is absent. The organic matter content of the surface layer is dominantly very low to 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: 0 to 5 percent

Surface Texture: Loamy fine sand, fine sand, loamy sand, sand

Sand Content of Surface Layer: 80 to 97 percent

Clay Content of Surface Layer: 1 to 15 percent

Organic Matter Content of Surface Layer: Averages 1.3 percent, but ranges from 0.5 to 3.0

Cation Exchange Capacity of Surface Layer (meq/100g):
 0.1 to 7.6

Effective Cation Exchange Capacity of Surface Layer (meq/100g): 0.1 to 7.9

Bulk Density of Surface Layer (g/cc): 1.38 to 1.55

Saturated Hydraulic Conductivity of Surface Layer: Rapid or very rapid

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

Available Water Capacity (0 to 30 inches): 0.1 to 1.4 inch per inch

Depth to Finer Textured Material: 40 to more than 80 inches

Depth to Bedrock: Greater than 80 inches. A few members have bedrock at 50 to 80 inches.

Drainage Class (Agronomic): Somewhat poorly, moderately well

Depth to Seasonal High Water Table (during wet periods): 1 to 3 feet

Flooding: Occasional with brief or long duration

Ponding: None

Monthly precipitation (inches) and temperature (F):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip avg	4.89	3.82	5.09	3.28	3.27	6.23	6.84	7.12	4.86	2.98	2.69	3.34
Avg Min	41.1	43.6	49.4	54.3	62.0	68.5	71.1	70.8	67.9	57.7	50.0	43.2
Avg Temp	55.1	56.3	62.3	67.5	74.4	79.6	81.6	81.2	78.4	69.8	62.4	55.4
Avg Max	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. Adjei, M.B., and P. Mislevy. 1988. Forage Yield and Quality of Summer Annual Grasses and Legumes in Central Florida. Univ. Florida, Range Cattle AREC. Research Rep. RC-1988-3. 6 p.
2. Adjei, M., and P. Mislevy. 2006. Comparing Forage Production from Ryegrass, Tall Fescue, and Harding Grass in Central Florida. Ona Reports. Feb. 2006. (<http://rcrec-ona.ifas.ufl.edu/pdf/publications/ona-reports/2006/February-2006.pdf>; accessed August 20, 2011)
3. 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.
4. Green, V.E., Jr., D.W. Gorbet, L.S. Dunavin, Jr., H.A. Peacock, J.T. Johnson, R.S. Kalmbacher, C.G. Chambliss, R.J. Allen, Jr., G.M. Prine, A.M. Akhanda, B.R. Tyree, and P.H. Everett. 1978. Statewide uniform tests with grain sorghums, silage sorghums, annual summer grasses (sorghum x sudangrasses and pearl millets) and sweet sorghums (sorgos). Dep. Agron., Univ. Florida. Agron. Res. Rep. AG 78-7. 95 p.
5. Kalmbacher, R.S., E.M. Hodges, F.G. Martin. 1980. Effect of Plant and Cutting Height on Yield and Quality of *Indigofera hirsuta*. Tropical Grassld. 14:14-18.
6. Mislevy P., O.P. Miller, and F.G. Martin. 2008. Influences of Grazing on *Cynodon* Grasses in Peninsular Florida, Online. Forage and Grazinglands doi; 10.1094/FG-2008-0429-01-RS. (<http://www.plantmanagementnetwork.org/pub/fg/research/2008/cynodon>; accessed August 19, 2011).
7. Mislevy, P., M.J. Williams, A.S. Blount, and K.H. Quesenberry. 2007. Influence of Harvest Management on Rhizoma Perennial Peanut Production, Nutritive Value, and Persistence on Flatwoods Soils. Online. Forage and Grazinglands. doi:10.1094/FG-2007-1108-01-RS. (<http://www.plantmanagementnetwork.org/pub/fg/research/2007/harvest/>; accessed August 19, 2011).
8. McCloud. D.E., E.S. Horner, V.E. Green, Jr., R.D. Barnett, K. Hinson, A.J. Norden, C.E. Freeman, F. Clark, and G.B. Killinger. 1972. Florida Field and Forage Crop Variety Trials 1971. Univ. Florida. Agron. Mimeo Rep. AG 72-5.
9. Prine, G.M., C. Ruelke, C.E. Dean, and D.D. Baltensperger. 1984. Performance of Winter Forage Legumes at Gainesville, Florida Over Eight Growing Seasons 1975-76 to 1982-83. Univ. Florida, IFAS. Agron. Res. Rep. AY 84-10. 32 p.
10. Sumner S., W. Wayne, J. Selph, J. Southwell, V. Hoge, P. Hogue, E. Jennings, P. Miller, and T. Seawright. 1991. Fertilization of Established Bahiagrass Pasture in Florida. Univ. Florida, IFAS, Agric. Exp. Stn., Cir. 916. (<http://rcrec-ona.ifas.ufl.edu/pdf/publications/fertilization-established-bahia-pasture-FL.pdf>; accessed August 20, 2011).

State Correlation: (NA)

Forage Suitability Group Approval:



Greg Hendricks, State Resource Conservationist



Tom Weber, State Soil Scientist

Appendix 1: Climate Station Locations		
COOP ID (FL=08)	Location	County
4731	Lake City	Columbia
4394	Jasper	Hamilton
5539	Mayo	LaFayette
9120	Usher Tower	Levy
5275	Madison	Madison
5099	Live Oak	Suwannee