

FORAGE SUITABILITY GROUP

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

FSG No.: G154XB134FL

Major Land Resource Area (MLRA 154): South-Central Florida Ridge

Map Unit List

Anclote-Tavares-Pomello association, flooded
Ocilla, Alapaha, and Mandarin soils, 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. Irrigation is not recommended in these soils, and 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*)
- Stargrass (*Cynodon nlemfuensis*, adapted on these soils only south of I-4)

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)
- Carpon desmodium (*Desmodium heterocarpum*)

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 G154X131FL 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.

Seasonal and total forage production may be limited during low rainfall periods due to deep sandy soils in this group. Surface and subsurface texture is predominantly sandy. 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 G154XB111FL due to increased available water during the growing season, but lower than FSG G154XB141FL due to lower water availability at other times of the year.

For this FSG, use of cool season forages such as annual ryegrass, oats, and wheat planted in a prepared seedbed

is dependent upon the location in the MLRA. Forage production is usually at the middle to lower end of the production range due to limited and sporadic rainfall during fall and winter months, particularly in the southern half of this MLRA. Additionally in the southern portion of the MLRA, warm temperatures persisting into the fall and returning quickly in the spring greatly shorten the production period for cool season forages. Thus in the southern portion of the MLRA, cool season forages are not recommended on this FSG. In the northern half of the MLRA, this FSG will generally 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 anywhere in this MLRA for

this FSG, due to excessive competition from bahiagrass for soil moisture.

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. Carpon desmodium can also be oversown onto bahiagrass stands in this forage suitability group, although root knot nematodes may limit the production of the legume after a few years. 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.

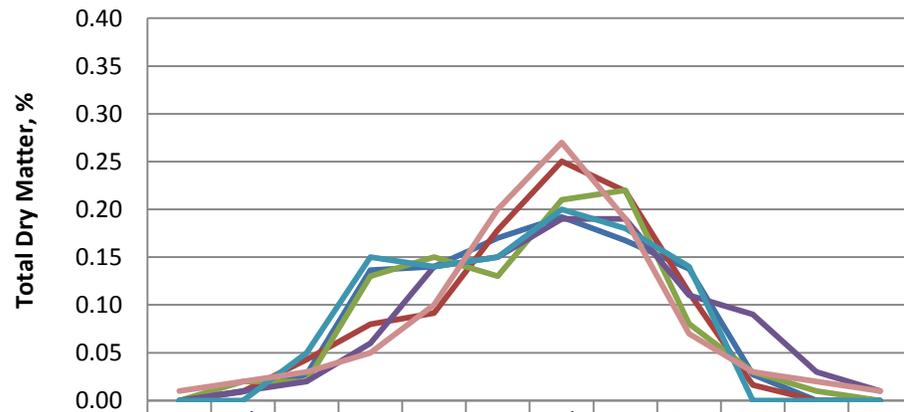
Expected Range in Dry Matter Production and Animal Unit Months (AUM) for Different Forages†				
Forage	Range in Dry matter, lbs/acre		Range in AUM/acre‡	
Bahiagrass (0 lb N/acre) ^{10,11} #	2,250	4,500	1.4	2.8
Bahiagrass (60 lb N/acre) ¹¹	6,000	7,500	3.8	4.7
Carpon desmodium/Bahiagrass ⁵	4,875	6,375	3.1	4.0
Bermudagrass, (200 lb N/acre) ⁶	10,000	14,000	6.3	8.9
Stargrass (≈400 lb N/acre) ⁹	9,000	11,250	5.7	7.1
Rhizome Perennial Peanut ⁷	8,000	14,000	5.1	8.9
Pearl Millet (225 to 300 lb N/acre) ^{1,3}	6,000	12,000	3.8	7.6
Sorghum X Sudangrass (225 to 300 lb N/acre) ^{1,3}	10,000	24,000	6.3	15.2
Hairy Indigo ⁴	2,000	3,000	1.3	1.9
Annual Ryegrass ^{2,8}	1,500	5,250	0.9	3.3

†Production based on 25% decrease from FSG G154XB141FL except for bermudagrass, rhizoma perennial peanut, and warm season annuals.

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

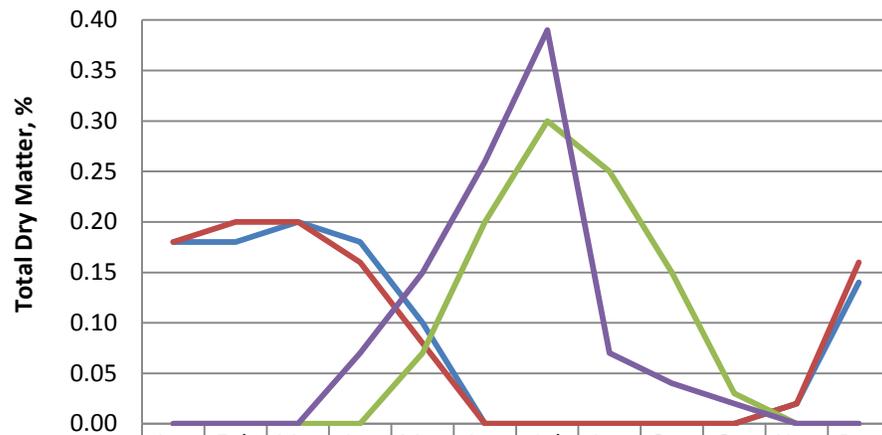
#Superscript numbers refer to references.

Growth Curves and Dry Matter Distribution for Perennial Species in FSG 134



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bahiagrass (Pensacola)	0.00	0.01	0.03	0.14	0.14	0.17	0.19	0.17	0.14	0.03	0	0
Bahiagrass (Argentine)	0.00	0.01	0.04	0.08	0.09	0.18	0.25	0.22	0.11	0.02	0	0
Bermudagrass (Tifton 85)	0	0.02	0.02	0.13	0.15	0.13	0.21	0.22	0.08	0.03	0.01	0.00
Stargrass	0.00	0.01	0.02	0.06	0.14	0.15	0.19	0.19	0.11	0.09	0.03	0.01
Rhizoma Perennial Peanut	0.00	0.00	0.05	0.15	0.14	0.15	0.20	0.18	0.14	0	0	0
Native Warm Season Perennial Grasses	0.01	0.02	0.03	0.05	0.1	0.2	0.27	0.19	0.07	0.03	0.02	0.01

Growth Curves and Dry Matter Distribution for Annual Species in FSG 134



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Annual Ryegrass	0.18	0.18	0.2	0.18	0.1	0	0	0	0	0	0.02	0.14
Smallgrains	0.18	0.2	0.2	0.16	0.08	0	0	0	0	0	0.02	0.16
Sorghum-Sudangrass	0	0	0	0	0.07	0.2	0.3	0.25	0.15	0.03	0	0
Millet (Pearl and Browntop)	0	0	0	0.07	0.15	0.26	0.39	0.07	0.04	0.02	0	0

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 316 d (range 278-365 d)

Length of growing season (>32° F 9 years in 10 at least): averages 285 d (range 243-365 d)

Annual minimum temperature (° F in month of January): average 50.2 (range 45.2-59.2)

USDA Plant Hardiness Zone:
 9a (20-25° F, Ocala)
 9b (25-30° F, Orlando)

Mean annual precipitation (inches): averages 51.09 (range 47.70-67.03)

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	3.04	2.89	3.69	2.40	3.52	6.86	7.17	7.36	6.22	2.79	2.38	2.47
Avg Min	48.1	49.6	54.4	58.5	65.0	70.7	72.3	72.5	71.0	61.0	56.6	51.0
Avg Temp	60.0	61.5	66.4	68.6	76.6	80.8	81.8	81.8	80.4	74.2	67.5	61.5
Avg Max	70.8	72.9	77.9	82.4	87.7	90.6	91.7	91.4	89.5	84.0	77.9	72.2

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

FSG Documentation

Inventory Data References:

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11. 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. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station. Cir. 916. 23 p. Available at: <http://rcrec-ona.ifas.ufl.edu/pdf/publications/fertilization-established-bahia-pasture-FL.pdf>. Accessed 17 December 2012.

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
945	Bradenton	Manatee
6414	Ocala	Marion
6628	Orlando Intl. Air.	Orange
7851	St. Leo	Pasco
7886	St. Petersburg	Pinellas
8824	Tarpon Springs	Pinellas
478	Bartow	Polk
4707	Lake Alfred Exp Stn	Polk
4797	Lakeland	Polk
5973	Mountain Lake	Polk
9707	Winter Haven	Polk
1978	Crescent City	Putnam
2915	Federal Point	Putnam
6753	Palatka	Putnam
7982	Sanford Orlando	Seminole
1163	Bushnell	Sumter
2229	Deland	Volusia