FORAGE SUITABILITY GROUP

Shallow or Moderately Deep, Sandy or Loamy Soils on Rises and Ridges of Mesic Uplands

FSG No.: G154XB521FL

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

Map Unit List

Aripeka fine sand
Aripeka fine sand
Broward fine sand
Citronelle fine sand
Jonesville fine sand, 0 to 5 percent slopes
Pedro fine sand, 0 to 5 percent slopes
Pedro-Jonesville complex, 0 to 5 percent slopes
Williston loamy fine sand, 2 to 5 percent slopes
Williston variant loamy fine sand, 2 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. All forages listed are adapted to dryland conditions, but irrigation may be warranted for cool season forages in this FSG. 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)
- Chalky Bluestem (*Andropogon virginicus* var. *glaucus*)
- Big Bluestem (*Andropogon gerardii*, northern half of the MLRA)
- Splitbeard Bluestem (*Andropogon ternarius*)
- Yellow Indiangrass (*Sorghastrum nutans*)
- Switchgrass (*Panicum virgatum*)

Legumes
Warm season (Introduced)
- Rhizoma Perennial Peanut (*Arachis glabrata*; pH 5.8-7.0)

Annual Species:

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

Legumes and Forbs
Warm season (Introduced)
- Alyceclover (*Alysicarpus vaginalis*)
- Cowpea (*Vigna unguiculata*)
- Hairy Indigo (*Indigofera hirsuta*)

Seasonal and Total Production Estimates

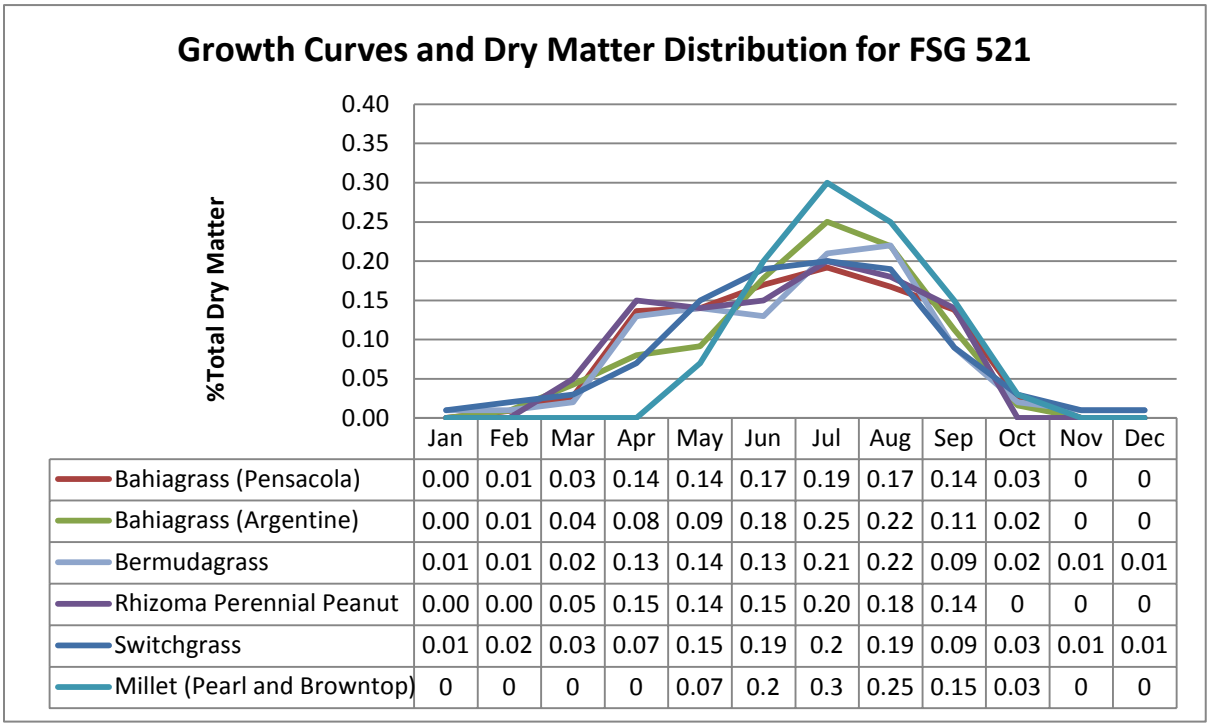
Soils in this FSG are limited by their relatively shallow rooting depth (<40 inches to bedrock) and a water table during the rainy season that can be below 6 foot. Combined, these factors suggest that these soils will have forage production lower than for FSG G154XB221FL. Additionally, establishment and growth of all bahiagrass cultivars will be marginal for those soils in this FSG with pH>5.5. Bermudagrass is the better choice for an introduced perennial grass on those high pH soils.

Similar to FSG G154XB221FL, total annual production is driven largely by rainfall; yields can increase by >1,000 lbs/acre in years with above average rainfall. However greatly reduced production and even stand loss associated with over grazing can occur in years with below average rainfall. Irrigation is not recommended for these soils due to poor water holding capacity and restricted rooting zone. Establishment of both annual and perennial warm season forages maybe delayed due to limited rainfall in the spring and short term drought periods in the summer months. Total production of all forage species is expected to be considerably less than other FSG, with a general growth curve weighted more towards the later part of the growing season. As a consequence of the restricted rooting depth, cool season forages are not recommended for this FSG.

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)[5]#	3,500	3,900	2.3	2.5
Bahiagrass (60 lb N/acre)[5,9]	5,600	6,750	3.6	4.3
Bermudagrass (400 lb N/acre)[4]	19,700	22,500	12.6	14.4
Switchgrass, Alamo[1]	8,400	9,000	5.4	5.8
Rhizoma Perennial Peanut, Flori-graze[3,7]	9,800	11,250	6.3	7.2
Pearl Millet (limited irrigation,≈400 lb N/acre) [6]	11,250	18,000	7.2	11.5
Alyceclover[8]	4,200	5,600	2.7	3.6
Hairy Indigo[2]	8,400	13,500	5.4	8.7

† Production data based on 10% decrease in yield range values from FSG G154XB221FL due to rock.
‡Animal Unit Month based on 50% grazing efficiency and 2.6% intake per day.
#Superscript numbers refer to references.

Production Curve:



	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	0.01	0.01	0.02	0.13	0.14	0.13	0.21	0.22	0.09	0.02	0.01	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
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
Millet (Pearl and Browntop)	0	0	0	0	0.07	0.2	0.3	0.25	0.15	0.03	0	0

Physiographic Features

Dominantly shallow to moderately deep, nearly level to sloping, somewhat poorly drained to well drained soils formed in less than 40 inches of sandy or loamy marine deposits or residuum over limestone bedrock. These soils occur on summits, shoulders, and back slopes of bedrock controlled uplands. Diagnostic subsurface horizon is an argillic horizon, or is absent. A few members have either a mollic or umbric horizon. The organic matter content of the surface layer is dominantly very low or low. Unless limed, the reaction in the surface layer ranges from strongly acid to moderately alkaline.

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: Dominantly 0 to 5 percent, but ranges to 8 percent

Surface Texture: Dominantly sand, fine sand, and loamy fine sand. A few members are loam, sandy clay loam, or loam.

Sand Content of Surface Layer: 40 to 98 percent

Clay Content of Surface Layer: 1 to 23 percent

Organic Matter Content of Surface Layer: 0.5 to 5 percent

Cation Exchange Capacity of Surface Layer (meq/100g): 0.6 to 25.7

Effective Cation Exchange Capacity of Surface Layer (meq/100g): 0.3 to 3.5

Bulk Density of Surface Layer (g/cc): 1.3 to 1.53

Saturated Hydraulic Conductivity of Surface Layer: Rapid

Soil Reaction of Surface Layer: 5.1 to 8.4

Available Water Capacity (0 to 30 inches): 0.1 to 1.5 inch per inch

Depth to Finer Textured Material: Less than 40 inches

Depth to Bedrock: Dominantly 10 to 40 inches to limestone

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

Depth to Seasonal High Water Table (during wet periods): 1.5 feet to greater than 6 feet below the surface

Flooding: None. A few members are occasionally flooded with brief 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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8. Williams, M.J., C.G. Chambliss, and J.D. Brolmann. 1993. Potential of 'Savanna' stylo as a stockpiled forage for the subtropical USA. Journal of Production Agric. 6:553-556.
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State Correlation: (NA)

Forage Suitability Group Approval:

Greg Hendricks, State Resource Conservationist

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FL NRCS
December 2012

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