FORAGE SUITABILITY GROUP

Sandy Soils on Ridges and Dunes of Xeric Uplands

FSG No.: G138XA111FL

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

Map Unit List

Alaga loamy fine sand, 0 to 5 percent slopes
Alpin fine sand, 0 to 5 percent slopes
Alpin sand, 0 to 5 percent slopes
Alpin sand, 5 to 8 percent slopes
Fort Meade variant loamy fine sand, 0 to 5 percent
Kershaw fine sand, gently rolling
Lakeland fine sand, 0 to 5 percent slopes
Penney fine sand, 0 to 5 percent slopes
Penney fine sand, 5 to 8 percent slopes
Troup fine sand, 0 to 5 percent slopes
Troup fine sand, 5 to 8 percent
Troup fine sand, 5 to 8 percent slopes
Valdosta sand, 0 to 5 percent slopes
Valdosta sand, 5 to 8 percent slopes
Wadley fine sand, 0 to 5 percent slopes
Wadley 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 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)
- Chalky Bluestem (*Andropogon virginicus* var. *glaucus*)
- 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)

Cool season (Introduced)
- Rye (*Secale cereale*)

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

Seasonal and Total Production Estimates

Seasonal and total forage production is limited in this group due to soils being well drained to excessively drained. Surface and subsurface texture is predominantly sandy with low or very low available water capacity, and a seasonal high water table greater than 6 feet. These factors increase drought effects. 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. 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.

Rye is the only cool season forage recommended for this FSG. Productivity of other cool season annuals will be very low without irrigation due to poor water holding capacity of the soils in this FSG.

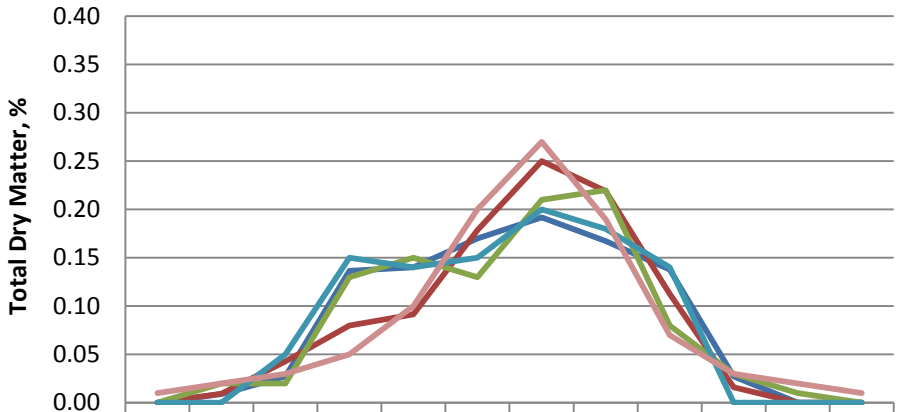
Expected Range in Dry Matter Production and Animal Unit Months (AUM) for Different Forages

Forage	Range in Dry Matter Yield, lb/acre		Range in AUM/acre†	
Bahiagrass (0 lb N/acre)[6]‡	2,500	3,500	1.6	2.2
Bahiagrass (60 lb N/acre)[6,10]	4,000	6,000	2.6	3.8
Bermudagrass (400 lb N/acre)[5]	14,000	20,000	9.0	12.8
Switchgrass, Alamo[1]	6,000	8,000	3.8	5.1
Rhizoma Perennial Peanut, Florigraze[4,8]	7,000	10,000	4.5	6.4
Pearl Millet (limited irrigation, ≈400 lb N/acre)[7]	8,000	16,000	5.1	10.3
Rye (120 lb N/acre)[3]#	3,600	4,800	2.3	3.1
Alyceclover[9]	3,000	5,000	1.9	3.2
Hairy Indigo[2]	6,000	12,000	3.8	7.7

†Animal Unit Month based on 50% grazing efficiency and 2.6% intake per day.
‡Superscript numbers refer to references.
#Production data based on 40% reduction yield range of FSG G138XA321FL.

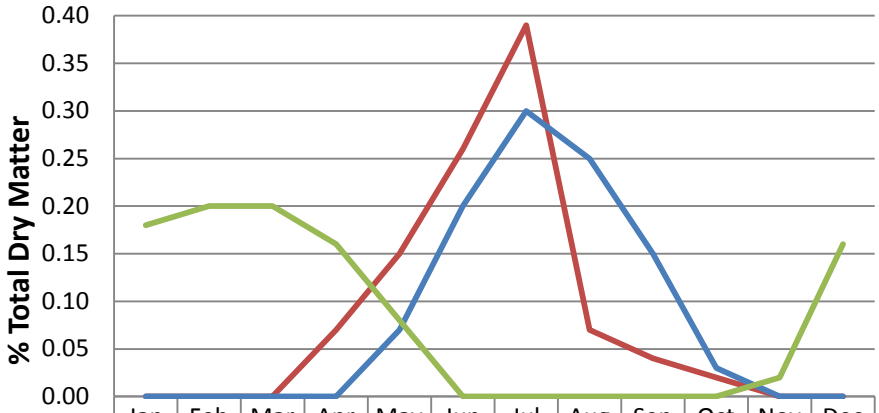
Production Curves:

Growth Curves and Dry Matter Distribution for Perennial Species in FSG 111



	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
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 111



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

Physiographic Features

Dominantly very deep, nearly level to sloping, well to excessively drained soils formed in eolian or sandy marine deposits. These soils occur on summits, shoulders, and back slopes of marine terraces. They have 40 inches to greater than 80 inches of fine sand or sand. Diagnostic subsurface horizon is an argillic horizon below 40 inches or is absent. The organic matter content of the surface layer is dominantly very low or low. 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 8 percent

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

Sand Content of Surface Layer: 81 to 99 percent

Clay Content of Surface Layer: 0.1 to 10 percent

Organic Matter Content of Surface Layer: 0.5 to 5 percent

Cation Exchange Capacity of Surface Layer (meq/100g): 0.3 to 7.1

Effective Cation Exchange Capacity of Surface Layer (meq/100g): 0.1 to 6.7

Bulk Density of Surface Layer (g/cc): 1.3 to 1.7

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 1.0 inch per inch

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

Depth to Bedrock: Greater than 80 inches

Drainage Class (Agronomic): Well, Somewhat excessive, Excessive

Depth to Seasonal High Water Table (during wet periods): More than 6 feet

Flooding: None

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:

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9. Williams, M.J., C.G. Chambliss, and J.D. Brolmann. 1993. Potential of 'Savanna' Stylo as a Stockpiled Forage for the Subtropical USA. J. Prod. Agric. 6:553-556.
10. Williams, M.J., and R.S. Kalmbacher. 1996. Renovation Effects on Bahiagrass Productivity. Agron. J. 88:191-198. (https://www.agronomy.org/publications/aj/abstracts/88/2/AJ0880020191, accessed August 22, 2011).

State Correlation: (NA)

Forage Suitability Group Approval:

Greg Hendricks, State Resource Conservationist

Tom Weber, State Soil Scientist

FL NRCS
December 2012

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