FORAGE SUITABILITY GROUP

Sandy Soils on Stream Terraces, Flood Plains or in Depressions

FSG No.: G155XB145FL

Major Land Resource Area (MLRA 155): Southern Florida Flatwoods

Soil Series List

Due to the large list of map units in this group, please refer to Appendix 1.

Anclote	Myakka
Astor	Oldsmar
Basinger	Placid
Delray	Pomona
EauGallie	Pompano
Hallandale	Popash
Holopaw	St. Johns
Immokalee	Smyrna
Malabar	Valkaria
Margate	Wabasso
Monteocha	Wesconnett

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 grasses will need native pH raised to min. 5.5 (unless noted) for best production. Consult with state extension service for current cultivar or germplasm recommendations (http://agronomy.ifas.ufl.edu/foragesofflorida/).

Perennial Species:

Grasses

Warm season (Introduced)

- Limpograss (*Hemarthria altissima*)

Warm season (Native)

- Maidencane (*Panicum hemitomon*)
- Blue Maidencane (*Amphicarpum muhlenbergianum*)

Annual Species:

Grasses

Warm season

- Japanese Millet (*Echinochloa esculenta*)

Legumes

Warm season

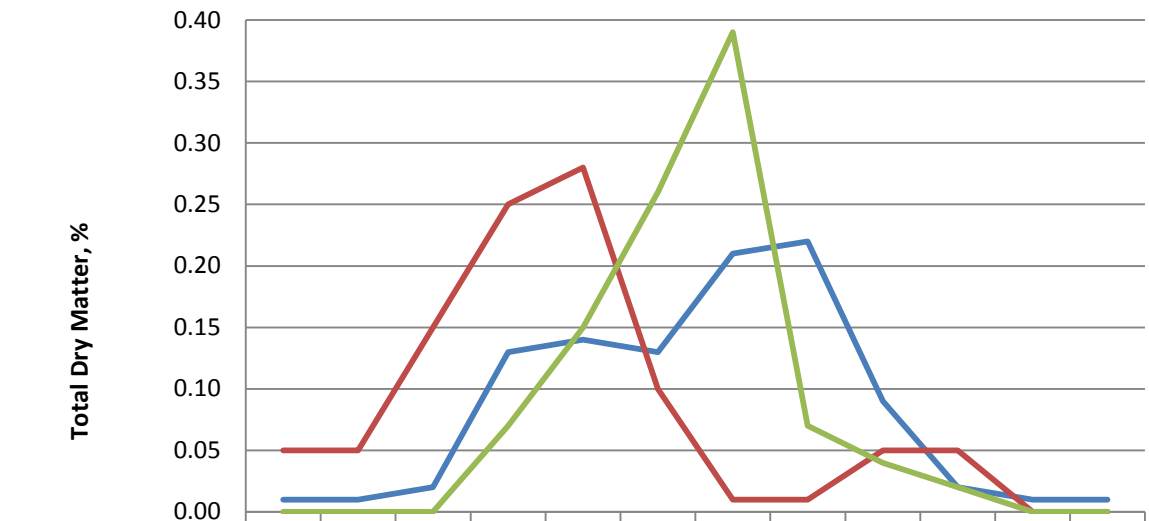
- Aeschynomene (*Aeschynomene americana*)

Seasonal and Total Production Estimates

Unless previously drained, soils in this FSG have very few forage species adapted to their seasonal high water table (1 to 2 feet above the soil surface). If previously drained see forage list and discussion with FSG G155XB141FL.

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†	
Limpograss (≈400 lb N/acre)[3,5]	8,000	13,000	5.1	8.2
Maidencane[1]#	5,000	6,700	3.2	4.3
Blue Maidencane[1]#	2,100	2,500	1.3	1.6
Japanese Millet[2]	4,000	6,000	2.5	3.8
Aeschynomene[4]	2,000	3,000	1.3	1.9

†Animal Unit Month based on 50% grazing efficiency and 2.6% intake per day.
‡Superscript numbers refer to references.
#Dry matter estimated based on the assumption air dried yield in reference had ≈16% moisture.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limpograss	0.01	0.01	0.02	0.13	0.14	0.13	0.21	0.22	0.09	0.02	0.01	0.01
Maidencane	0.05	0.05	0.15	0.25	0.28	0.1	0.01	0.01	0.05	0.05	0	0
Japanese Millet	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, poorly drained or very poorly drained soils formed in sandy marine deposits or alluvial deposits. These soils are on flood plains, stream terraces, or depressions of marine terraces. They have 40 inches to greater than 80 inches of fine sand or sand. Diagnostic subsurface horizons are either a spodic horizon within 30 inches, an argillic horizon below 40 inches or both. Some soils lack a diagnostic subsurface horizon. A few members have either a mollic or umbric horizon. The organic matter content of the surface layer is dominantly medium or high. 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 337 d (range 290-365 d)

Length of growing season (>32° F 9 years in 10 at least): averages 309 d (range 253-365 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)
10a (30-35° F, Ft. Myers)

Mean annual precipitation (inches): averages 51.89 (range 45.66-69.53)

Soil Properties

Percent Slope: 0 to 2 percent

Surface Texture: Fine sand, sand, loamy sand, loamy fine sand, and their mucky analogs

Sand Content of Surface Layer: 78 to 98 percent

Clay Content of Surface Layer: 0.4 to 10 percent

Organic Matter Content of Surface: 0.5 to 20 percent

Cation Exchange Capacity of Surface Layer (meq/100g): 1.8 to 12.4

Effective Cation Exchange Capacity of Surface Layer (meq/100g): 0.9 to 19.2

Bulk Density of Surface Layer (g/cc): 1.1 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): 1.0 to 5.4 inch per inch

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

Depth to Bedrock: Dominantly more than 80 inches. A few members have bedrock at less than 40 inches.

Drainage Class (Agronomic): Poorly, Very Poorly

Depth to Seasonal High Water Table (during wet periods): 1 to 2 feet above the surface

Flooding: If flooded, frequent or occasional with brief to very long duration

Ponding: If ponded, long or very long duration

Monthly precipitation (inches) and temperature (F):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Precip avg	2.70	2.59	3.37	2.39	3.90	7.26	6.98	7.14	6.75	3.50	2.66	2.24
Avg Min	50.2	51.4	55.7	59.6	65.5	70.8	72.3	72.7	71.6	63.9	58.9	53.0
Avg Temp	62.3	63.5	67.8	70.5	77.1	81.1	82.0	82.3	81.1	75.8	69.6	63.9
Avg Max	72.7	74.4	78.6	82.7	87.5	90.2	91.5	91.3	89.5	84.8	79.2	74.0

Climate Station Locations (averages from 1971 to 2000; see Appendix 2)

FSG Documentation

Inventory Data References:

1. --------. 1987. Range management for important native grasses of Florida. Gainesville, FL, USA: US Department of Agriculture, Natural Resources Conservation Service. 168 p.
2. Barnhart, S. 2008. Forage and cover crop considerations for delayed planting and flooded sites. Ames, IA, USA: Iowa State University Extension. Available at: http://www.extension.iastate.edu/CropNews/2008/0611SteveBarnhart.htm. Accessed 18 December 2012.
3. Kalmbacher, R.S., P.H. Everett, F.G. Martin, K.H. Quesenberry, E.M. Hodges, O.C. Ruelke, and S.C. Schank. 1987. Yield and persistence of perennial grasses at Immokalee, Florida: 1981 to 1984. Gainesville, FL, USA: University of Florida, Institute of Food and Agricultural Sciences, Agriculture Experiment Station. Bull. 865. Available at: http://ufdc.ufl.edu/UF00027614/00001?search=kalmbacher. Accessed 17 December 2012.
4. Mislevy, P., R.S. Kalmbacher, and F.G. Martin. 1981. Cutting management of the tropical legume American jointvetch. Agronomy Journal 73:771-775 Available at: https://www.agronomy.org/publications/aj/abstracts/73/5/AJ0730050771. Accessed 17 December 2012.
5. Newman Y.C., A. Agyin-Birikorang, M.B. Adjei, J.M. Silveira, J.M.B. Vendramini, J.E. Rechcigl, and L.E. Sollenberger. 2009. Nitrogen fertilization effect on phosphorus remediation potential of three perennial warm-season forages. Agronomy Journal 101:1243-1248. Available at: https://www.soils.org/publications/aj/pdfs/101/5/1243. Accessed 19 December 2012.

State Correlation: (NA)

Forage Suitability Group Approval:

Greg Hendricks, State Resource Conservationist

Tom Weber, State Soil Scientist

Appendix 1: Map Unit List	
Anclote mucky fine sand, depressional	Malabar fine sand, depressional
Anclote sand, depressional	Malabar sand, depressional
Anclote-Basinger fine sand, frequently flooded	Margate sand (FL051)
Astor fine sand (FL127)*	Monteocha sand, depressional
Astor fine sand, depressional	Myakka fine sand, depressional
Astor mucky fine sand, frequently flooded	Myakka fine sand, frequently flooded
Basinger and Placid soils, depressional	Myakka sand, depressional
Basinger and Smyrna fine sands, depressional	Myakka-St. Johns complex (FL027)
Basinger fine sand, depressional	Oldsmar sand, depressional
Basinger fine sand, frequently flooded	Placid fine sand, depressional
Delray and Astor soils, frequently flooded	Placid, Basinger, and St. Johns soils, depressional
Delray fine sand, depressional	Placid-Pompano association, frequently flooded
Delray loamy fine sand, depressional	Pomona fine sand, depressional
Delray mucky fine sand, depressional	Pompano fine sand, depressional
Delray mucky loamy fine sand	Pompano fine sand, frequently flooded
Delray sand, depressional	Pompano fine sand, occasionally flooded
EauGallie fine sand, depressional	Popash mucky fine sand (FL049)
Hallandale sand, depressional	St. Johns fine sand, depressional
Holopaw fine sand, depressional	Valkaria fine sand (FL127)
Holopaw fine sand, frequently flooded	Valkaria fine sand, depressional
Holopaw sand, depressional	Wabasso fine sand, depressional
Immokalee sand, depressional	Wesconnett fine sand, frequently flooded
Malabar fine sand (FL043)	

***NOTE: Some members do not identify flooding or depressional in the map unit name but are subject to flooding or ponding. In these cases, please refer to the water features data on the Web Soil Survey or Soil Data Mart. Information in parenthesis refers to soil survey code where map unit occurs.**

Appendix 2: Climate Station Locations

COOP ID (FL=08)	Location	County
8942	Titusville	Brevard
3163	Fort Lauderdale	Broward
7397	Punta Gorda	Charlotte
2850	Everglades	Collier
4210	Immokalee	Collier
228	Arcadia	DeSoto
5895	Moore Haven Lock	Glades
9401	Wauchula	Hardee
1654	Clewiston US Engin.	Hendry
2298	Devils Garden	Hendry
4662	La Belle	Hendry
236	Archbold Biol. Station	Highlands
369	Avon Park	Highlands
7205	Plant City	Hillsborough
8788	Tampa Intl. Air.	Hillsborough
9214	Vero Beach Muni. Air.	Indian River
9219	Vero Beach	Indian River
1641	Clermont	Lake
5076	Lisbon	Lake
3186	Fort Myers	Lee
6880	Parrish	Manatee
8620	Stuart	Martin
2137	Fort Drum	Okeechobee
6485	Okeechobee	Okeechobee
6628	Orlando Intl. Air.	Orange
4625	Kissimmee	Osceola
611	Belle Glade Exp. Stn.	Palm Beach
1276	Canal Point USDA	Palm Beach
5182	Loxahatchee	Palm Beach
9525	West Palm Beach Intl. Air.	Palm Beach
7851	St. Leo	Pasco
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
6065	Myakka River State Park	Sarasota
9176	Venice	Sarasota
7982	Sanford Orlando	Seminole
3874	Hastings ARC	St. Johns
7826	St. Augustine WFOY	St. Johns
3207	Fort Pierce	St. Lucie
1163	Bushnell	Sumter
2158	Daytona Beach Inter. Air.	Volusia
2229	Deland	Volusia