# FORAGE SUITABILITY GROUP

## Very Deep, Sandy Soils on Terraces and Floodplains

### FSG No.: G138XA124FL

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

### Map Unit List

Blanton fine sand, 0 to 5 percent slopes, occasionally flooded

Blanton fine sand, occasionally flooded

Resota 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)

- Chalky Bluestem (*Andropogon virginicus* var. *glaucus*)
- Big Bluestem (*Andropogon gerardii*)
- 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

Soils in this group are similar to those in FSG G138XA121FL 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 is somewhat higher than FSG G138XA111FL because soils in this FSG have slightly better water holding capacity and seasonal water table is higher (3 to 5 feet). These factors will decrease drought effects, but total annual production still 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 higher than FSG G153AA111FL but less than other groups, with a general growth curve still weighted more towards the later part of the growing season.

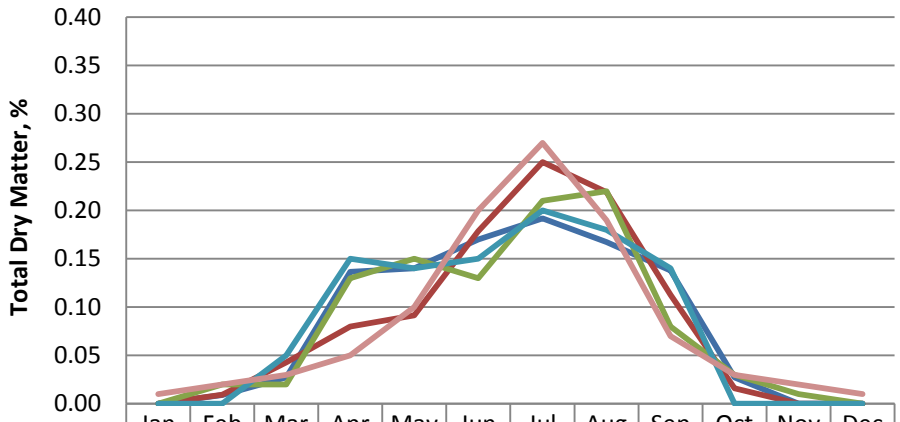
Rye is the only cool season forage recommended for this FSG. Productivity of other cool season annuals will be very low without irrigation due to poor water holding capacity of the soils in this FSG.

| 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]‡ | 3,100 | 4,400 | 2.0 | 2.8 |
| Bahiagrass (60 lb N/acre)[6,10] | 5,000 | 7,500 | 3.2 | 4.8 |
| Bermudagrass (400 lb N/acre)[5] | 17,500 | 25,000 | 11.2 | 16.0 |
| Switchgrass, Alamo[1] | 7,500 | 10,000 | 4.8 | 6.4 |
| Rhizoma Perennial Peanut, Florigraze[4,8] | 8,750 | 12,500 | 5.6 | 8.0 |
| Pearl Millet (limited irrigation, ≈400 lb N/acre)[7] | 10,000 | 20,000 | 6.4 | 12.8 |
| Rye (120 lb N/acre)[3]# | 3,950 | 5,300 | 2.5 | 3.4 |
| Alyceclover[9] | 3,750 | 6,250 | 2.4 | 4.0 |
| Hairy Indigo[2] | 7,500 | 15,000 | 4.8 | 9.6 |

†Production data based on a 25% increase from FSG G138XA111FL for all except rye which had only 10% increase.
‡Animal Unit Month based on 50% grazing efficiency and 2.6% intake per day.
#Superscript numbers refer to references.

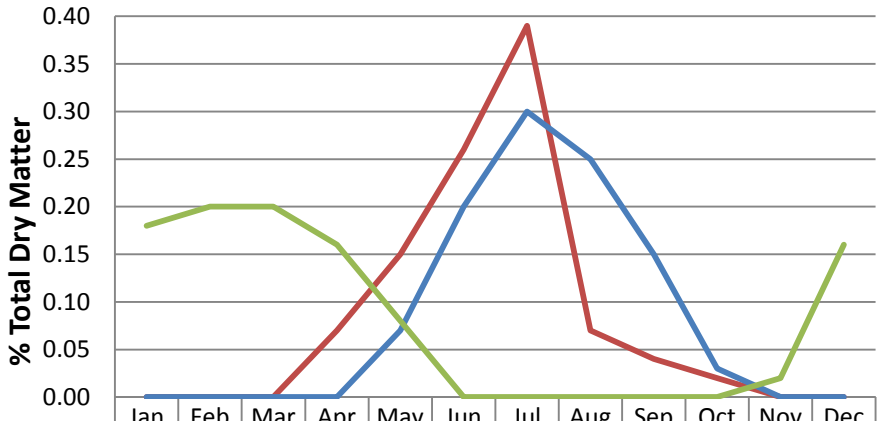
## Production Curves:

**Growth Curves and Dry Matter Distribution for Perennial Species in FSG 124**




| | 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 124**




| | 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 gently sloping, well drained soils formed in sandy alluvial or marine deposits. These soils are on flood plains or stream terraces. They have more than 80 inches of fine sand. Diagnostic subsurface horizons are 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:** Dominantly 0 to 5 percent

**Surface Texture:** Fine sand, sand

**Sand Content of Surface Layer:** 89 to 99 percent

**Clay Content of Surface Layer:** 0.1 to 8 percent

**Organic Matter Content of Surface Layer:** 0.5 to 3 percent

**Cation Exchange Capacity of Surface Layer (meq/100g):** 0.1 to 5.3

**Effective Cation Capacity of Surface Layer (meq/100g):** 0.1 to 5.8

**Bulk Density of Surface Layer (g/cc):** 1.3 to 1.6

**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):** 0.3 to 1.9 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 60 to 80 inches.

**Drainage Class (Agronomic):** Moderately well, well

**Depth to Seasonal High Water Table (during wet periods):** 3.0 to 5.0 feet below the surface

**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. -------. 2000. Plant Materials Adaption Study Final Report, Belleview-Perry Sprayfield., USDA, NRCS, Brooksville Plant Material Center Brooksville, Florida. 25 p.
2. Baltensperger, D.D., E.C. French, G.M. Prine, O.C. Ruelke, and K.H. Quesenberry. Hairy Indigo a Summer Legume for Florida. Univ. Florida, IFAS, Agric. Exp. Stn., Circular S-318 (http://ufdc.ufl.edu/UF00055246/00001, accessed August 22, 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. Beltranena, R., J. Breman, and G. Prine. 1981. Yield and quality of Florigraze rhizoma peanut (*Arachis glabrata* Benth.) as affected by cutting height and frequency. Proc. Soil Crop Sci. Soc. Florida. 40:153-156.
5. Coleman, S., and M. Williams. 2007. Bermudagrass yield and quality through the grazing season. *In* Proc. USDA-ARS STARS Field Day, May 25, 2007. Brooksville, FL.
6. Engibous, J.C., W.J. Friedmann, and M.B. Gillis. 1958. Yield and Quality of Pangolagrass and Bahiagrass as affected by Rate and Frequency of Fertilization. SSSAJ. 22:423-425. (https://www.agronomy.org/publications/sssaj/abstracts/22/5/SS0220050423, accessed August 22, 2011).
7. 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.
8. Williams, M.J. 1994. Growth Characteristics of Rhizoma Peanut and Nitrogen-Fertilized Bahia Swards. Agron. J. 86:819-823. (https://www.agronomy.org/publications/aj/abstracts/86/5/AJ0860050819, accessed August 22, 2011.)
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

| 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 |