

Forage Grasses for Florida's Organic Soils ¹

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The organic soils in south Florida are located south of Lake Okeechobee and encompass about 700,000 acres. The area, also known as the Everglades Agricultural Area (EAA), is primarily under agricultural production of sugarcane, vegetables, citrus, row crops, rice, sod, and improved pastures. In the past, the combination of potentially high forage yields on the fertile organic soils and the long grazing season were the basis for one of the highest concentrations of beef cattle and a viable beef cattle industry in Florida. Presently most livestock operations on EAA are small non-commercial herds on improved and unimproved pastures comprising less than 1% of the EAA.

St. Augustinegrass (*Stenotaphrum secundatum*) and limpgrass (*Hemarthria altissima*) are the two perennial forage grasses recommended for organic soils in south Florida. They are very effective forages because of their ability to grow well under the wet conditions usually associated with organic soils.

St. Augustinegrass

The 'Roselawn' variety of St. Augustinegrass was evaluated at the Everglades Experiment Station, now Everglades Research and Education Center, and released in 1944. It produces significantly higher quantities of forage than all other varieties of St. Augustinegrass. It has characteristically long internodes which grow close to the ground and produces top growth which contains 90 to 95% leafy tissue, regardless of maturity.

St. Augustinegrass has large flat stems and broad coarse leaves. It spreads by long, above-ground runners or stolons. St. Augustinegrass grows well on mineral soils in Florida, but due to its susceptibility to chinch bugs (*Blissus leucopterus*), which thrive on dry, well-drained areas, it is normally not grown on mineral soils for pasture. Since it is especially adapted to moist muck soils and grows practically year long in south Florida, it is considered the most dependable pasture grass for that area. Crabgrass and goose grass may constitute a problem, but these

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weeds are controlled by post-emergence herbicides when applied according to the labels.

On the organic soils of south Florida, St. Augustinegrass is tolerant to frost and usually remains green throughout the year. A freeze of less than 28° F for several hours will kill the top growth, but the plant will regrow from its base.

St. Augustinegrass is very persistent, even when overgrazed. It will yield 7 to 8 tons of dry matter per acre annually under grazing conditions. Eighty percent of St. Augustinegrass growth occurs from May through October. However, moderate quantities of stockpiled green forage can be carried into the fall and early winter period, and along with energy supplementation, it will provide adequate nutrition to brood cows. St. Augustinegrass grown on organic soil maintains crude protein levels of 13 and 16%, and TDN levels of 50 and 60% during the winter and summer, respectively.

St. Augustinegrass can be continuously grazed with no problems. A grazing trial conducted at the Everglades Experiment Station showed that yearling steers continuously grazing St. Augustinegrass gained faster and produced more liveweight gain per acre than did steers which were rotationally grazed on similar pastures.

Fertilizer recommendations for St. Augustinegrass on organic soils have not been based on soil test values, but on the requirement of the grass to support optimum level of beef production. Under grazing conditions, 200 to 400 pounds per acre of 0-10-20 fertilizer (9-26 lb P/acre and 33-80 lb K/acre) applied in the fall was adequate. Decision on the amount of fertilizer to apply is guided by economics based on prices of cattle and fertilizer. It is estimated that between the 200 and 400 pound per acre rate, each additional pound of fertilizer would produce about 12.5 pound per acre of calf weight. Nitrogen is not normally applied to crops grown in the EAA. A suitable trace mineral mixture should supply 4 pounds of CuO (3.2 lb. Cu), 4 pounds of MnO (3.1 lb. Mn), 3 pounds of ZnO (2.4 lb. Zn) and 3 pounds of B₂O₃ (1 lb. B) per acre annually for several years. For additional information on fertilization, see EDIS Publication SL129, UF/IFAS

Standardized Fertilization Recommendations for Agronomic Crops, <http://edis.ifas.ufl.edu/SS163>.

Pasture grasses appear to respond to Cu fertilization in cases where this micronutrient has not been applied as a soil amendment for many years. Copper is also important for cattle grazing pastures on organic soils to counteract the high Mo levels in forages grown on many of these soils. Cattle consuming forages grown on organic soil areas usually exhibit profound Cu deficiency problems, and benefit from increased Cu levels in forages fertilized with Cu. However, it would be more efficient to provide the needed Cu in a mineral mixture offered free-choice to grazing cattle.

Because St. Augustinegrass does not produce commercial quantities of viable seed, it is most commonly planted vegetatively with stem pieces or plugs. St. Augustinegrass should be planted in the summer months when soil moisture is adequate. Land to be established with St. Augustinegrass should be well prepared prior to planting in order to minimize weed competition. Once a St. Augustinegrass pasture is established, if weeds are present, they may require control by herbicide or mowing.

St. Augustinegrass would not make a good quality hay. It would be difficult to cure it because of its leafy characteristic, especially on organic soils which are generally moist or wet when St. Augustinegrass produces its highest forage yields.

Beef production on St. Augustinegrass has been good to excellent depending on local conditions of the pasture and level of supplementation. St. Augustinegrass is an excellent forage for cow-calf production because of its persistence, high yields, and relatively uniform quality throughout the year. St. Augustinegrass will stock two to three yearling steers per acre throughout the year with average gains of about one pound per steer daily, or 750 to 1100 pounds per acre without supplementation. Daily stocking would vary from a high of about four steers per acre in July and August to a low of about three yearlings per acres in January. With this stocking rate, and five pounds of straight millrun blackstrap molasses supplement per cow daily from December through March, an 80 to 90% weaned calf crop and

500 to 550 pound calf weaning weights are usually obtained.

Limpograss

Floralta limpograss is currently the commonly grown variety of limpograss. It is the most persistent limpograss under grazing and is best adapted to wet soils. Floralta is highly digestible, but the accumulated growth is low in protein. More information on limpograss may be obtained from Sollenberger, et al. (2006).

There are no forage production or animal grazing data available for Floralta grown on organic soils. Pastures and cattle would be managed similarly to that prescribed for mineral soils, as described in EDIS document SS-AGR-67 Floralta Limpograss (<http://edis.ifas.ufl.edu/AA218>), and higher dry matter yields are more likely on organic soils than is currently obtained on mineral soils. Fertilization practices and stocking rates for Floralta on organic soils would be similar to those of St. Augustinegrass discussed above.

Selected References for Additional Information

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