Limpograss Performance in North Florida

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Synopsis
Limpograss (*Hemarthria altissima*) is an important grass option in South Florida, however, there is not enough information about limpograss production and stockpiling potential in the Florida Panhandle. Limpograss might be an important alternative along the Gulf Coast to reduce feeding costs and extend the grazing season, considering its adaptation to high water tables, that also prevails in some areas along this region.

Introduction
Limpograss (*Hemarthria altissima*) has been successfully adopted in South Florida by livestock producers. This unique grass grows well in flatwood soils and maintains its digestibility for longer periods than other warm-season grasses (e.g. bahiagrass and bermudagrass). Limpograss is also less sensitive to daylength than other grasses, growing during the cool-season, especially in mild-winter like most years in South Florida. After a frost, limpograss will usually be one of the first warm-season grasses to initiate the regrowth. The first cultivars were released in Florida during the 1970s and 80s, and include the diploids ‘Redalta’ and ‘Greentalta’ and the tetraploids ‘Bigalta’ and ‘Floralta’ (Newman et al., 2014). Recently, two new cultivars were released, ‘Kenhy’ and ‘Gibtuck’. These cultivars present increased grazing tolerance, greater productivity, and nutritive value compared to previously released cultivars (Wallau et al., 2015). Limpograss is often used as stockpiling, considering its slower loss of digestibility compared to other warm-season grasses.

The potential of limpograss in North Florida, however, was not fully assessed. Although limpograss collections have been established in North Florida since 2005, a comprehensive evaluation including biomass productivity and nutritive value of the new cultivars was not performed. The persistence of limpograss throughout these years, however, shows the possibility to grow this species in North Florida, despite the cooler temperatures compared to South Florida. Along the Florida Panhandle there are vast areas that can potentially be used with limpograss, especially along the Gulf coast. One of the concerns of growing limpograss in North Florida is the shorter growing season compared to South Florida because of the earlier frost. Comprehensive evaluations are necessary in order to access these potential differences of limpograss performance in contrasting Florida environments.

Materials and Methods
We established a limpograss trial at UF-IFAS North Florida Research and Education Center (NFREC) in Marianna, FL. Plots were established in July 2014 and included four limpograss germplasm (breeding line 1 and the cultivars Kenhy, Floralta, and Gibtuck). We also included Tifton-85 bermudagrass as a control. Treatments were replicated four times in a randomized complete block design. From May 2015 to Feb 2017, we evaluated biomass productivity and digestibility (IVOMD) of these different grasses. Harvesting started in May of each year, with 5-weeks interval between harvests and 7 inches cutting height. From May to August, after each harvest plots received 60 lb. N/acre, 15 lb. P₂O₅/acre, and 60 lb. K₂O/acre. After August, we simulated a stockpiling scenario letting the plants grow and harvesting only a portion of the plot, every 5 weeks. Therefore, the forage harvested in December, for example, was the cumulative growth since August.

Results and Discussion
During the summer growth of 2016, forage growth peaked in July with Gibtuck being one of the most productive among limpograss germplasm with comparable growth to Tifton-85 bermudagrass, which is considered one of the most productive bermudagrass available (Figure 1). After August, plants accumulated biomass until December, showing the potential use for stockpiling in North Florida. During

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the stockpiling period, Kenhy presented one of the greatest potential. After December, for most cultivars there was not much gain in terms of biomass accumulation (Figure 1).

In the second year (May 2016 to Jan 2017), forages peaked earlier in the growing season and declined during the summer. This likely reflects the reduced rainfall combined with the frequent harvesting (5 weeks) compromising the productivity not only of the limpograss, but also of the Tifton-85 bermudagrass. During the stockpiling period, the grasses demonstrated a similar trend to accumulate biomass until December (Figure 2).

Digestibility of limpograss was often greater than Tifton-85 bermudagrass, especially during the stockpiling period (Figure 3). Limpograss kept its IVOMD from 55-60% until December 2016, when it significantly reduced it due to colder temperatures and frosts. The growth and digestibility data indicate that limpograss can be used during the summer and as stockpiling at least until December without significantly losing its digestibility. This would be sufficient to fill the November-December forage gap that often occurs along the Panhandle, allowing time for the cool-season forages to produce. As a result, significant reduction of feeding costs would occur, because of reduced need for conserved forages.

Conclusions and Implications
Limpograss is an alternative for North Florida, providing summer growth and potential use as stockpiling, at least until December. In general, limpograss was more digestible than Tifton-85 bermudagrass, especially during the stockpiling period. Differences among limpograss germplasm occurred, but those differences were not consistent along the two years. Therefore, all the cultivars and the breeding line tested have potential to be used in North Florida. Longer-term evaluation with animal performance is still necessary to fully access limpograss potential in North Florida.

Reference:

Figure 1. Herbage accumulation of limpograss germplasm and Tifton-85 bermudagrass from May 2015 to Jan 2016. UF-IFAS NFREC, Marianna, FL.
Figure 2. Herbage accumulation of limpograss germplasm and Tifton-85 bermudagrass from May 2016 to Jan 2017. UF-IFAS NFREC, Marianna, FL.
Figure 3. In vitro organic matter digestibility (IVOMD) of limpograss germplasm and Tifton-85 bermudagrass from May 2015 to Feb 2016. UF-IFAS NFREC, Marianna, FL.