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Improving Forage Productivity During Late Fall and Early Winter

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Warm season grasses in Florida produce little forage from October through February forcing producers to utilize alternative feed sources. Earlier studies have indicated the reason for low fall-winter grass production is not because of low temperature or lack of water but because of short day-length. To conduct this research lights were installed and turned on in August about 0.5 hours before sundown and remained on long enough to provide 15 hours of day-length. This process continued from August through mid-April. Grasses were harvested every five weeks. The fertilization program was 50-30-60 lb/acre N-P₂O₅-K₂O + micronutrients.

Pensacola bahiagrass responded the greatest to extended daylength (lights) with an average increase of 167% or 2.21 ton/acre in dry matter yield during the fall-winter (October-March) period. Extending the daylength of bahiagrass increased dry matter yield from 111% for the October 28 harvest 300% for the January 6 harvest (shortest natural daylength of the year), followed by a 165 and 157% yield increase for the February 10 and March 17, 1999 harvests. Tifton 85 bermudagrass responded second best to the extended daylength with an average yield increase of 46% in dry matter during the fall-winter period. The fall-winter dry matter yield under normal and extended daylength was 3.10 and 4.6 ton/acre, respectively. Florakirk bermudagrass and Florona stargrass responded the least to the extended daylength with a yield increase of 17% or 0.60 ton/acre and 22% or 0.75 ton/A, respectively.

As a result of the demonstrated potential for major increases in dry matter yield of Pensacola bahiagrass due to extended light, the IFAS Deans for Research and Agronomy Dept have initiated a breeding program in Quincy Florida with the objective of developing a bahiagrass plant that is daylength neutral or will grow the same during short

and long days. Hopefully , this will be the start of increasing winter forage production for Florida growers.

These data indicate extended day-length was most important for Pensacola bahiagrass and Tifton 85 bermudagrass. All grasses under the extended daylength achieved fall-winter yields that were superior to the highest yield of any grass under the normal daylength. About 5 to 10 years will be required to genetically change Pensacola bahiagrass so it will produce more high quality forage during the cool-short day period. In the meantime, growers are encouraged to utilize the short day production ability of Florakirk (3.3), Florona (3.4) and Tifton 85 (3.1 T/A) dry matter from October through March. These grasses are sensitive to frost and top-growth is completely killed by frost, but plants grow well up until frost and start growth quickly following the last spring frost. Floralta limpograss not tested in this study would also be a good choice for present-day winter forage production. If additional information is desired, please call 863-735-1314.