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Yield and Nutritive Value of Stockpiled Perennial Grasses as Influenced by Growth Period, Fertilizer, and a Freeze

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Fall stockpiling of forage grasses in the field for later grazing is a viable alternative to making hay. Harvesting forages is costly averaging approximately $23.00/ton of hay and $17.00/ton of silage. Hay production under tropical Florida conditions may be a difficult task especially during unfavorable weather conditions when dependent on contract services. In addition, harvested forages must be removed from storage and transported to the site of utilization. Stockpiled forage allows grass accumulation from October to the first freeze (frost) followed by timely utilization of the frozen grass. However, major concerns with stockpiled forages are dry matter accumulation during the fall and changes in forage nutritive value over time following a freeze.

A three year study was conducted with 9 perennial grasses (Floralta hemarthria, Florakirk and Tifton 85 bermudagrass, Florico and Florona stargrass and Tifton 9, Pensacola, Argentine and Paraguay 22 bahiagrasses) each allowed to accumulate from October 1 and November 15 with and without fertilizer. The fertilizer consisted of 50-13-50 lb/A N-P_2O_5-K_2O + micronutrients. All grasses were harvested for yield and nutritive value (crude protein and digestibility) on the day of the freeze, 1, 2, and 4 wk after the freeze. The following results are averaged over a 3-yr study. Allowing all 9 grasses to accumulate forage from either October 1 or November 15 until January averaged 1.3 or 0.4 T/A dry matter (DM), respectively at time of freeze. Hemarthria averaged 1.9 and 0.8 T/A, stargrasses and bermudagrasses 1.6 and 0.6, and bahiagrasses 0.7 and 0.3 T/A.

Forage accumulation for all grasses during the fall/winter with and without fertilizer averaged 1.3 and 0.5 T/A DM, respectively. Hemarthria averaged 2.0 and 0.7, stargrasses and bermudagrasses 1.7 and 0.6, and bahiagrasses 0.6 and 0.4 T/A, respectively. These data indicate fertilizing hemarthria, stargrassses, and bermudagrasses in early to mid-

October will result in 1.7 to 2.0 T/A DM, compared with 0.6 to 0.7 T/A with no fertilizer. Results also indicate little benefit to fertilizing bahiagrass during October or later.

Crude protein content decreased very little for all grasses from the day of the freeze to 4-wk after the freeze. Hemarthria averaged 9.2% CP both at the time of the freeze and at 1 wk after the freeze, and decreased to 8.5% at 2 and 4 wk after the freeze. Stargrass and bermudagrasses averaged 12.4, 11.6, 10.3 and 10.1% CP at the time of freeze, 1, 2, and 4 wk after the freeze, respectively. Bahiagrasses averaged 11.5, 10.9, 10.5, and 10.4% CP, respectively.

Forage digestibility, unlike CP decreased drastically over time following a freeze. Hemarthria averaged 63% on the day of the freeze, 59% 1 and 2 wk after the freeze and 54% after 4 wk. Stargrasses and bermudagrasses averaged 58, 53, 50, and 40% digestibility, respectively. Bahiagrasses averaged 59, 53, 52, and 44% digestibility, respectively. Forage digestibility tends to decrease immediately following a freeze for all grasses, however, the amount of decrease depends upon the grass. Floralta decreased the least and stargrasses, bermudagrasses and bahiagrasses decreased most drastically following a freeze.

These data indicate tropical forage grasses can be stockpiled in the fall for winter grazing. Unlike bahiagrasses, the stargrasses, bermudagrasses, and hemarthria will all respond to fall fertilization. Following a freeze, crude protein concentration in the standing forage will remain stable for up to 4 wk. However, digestibility of standing forage will drop within 1 wk after a freeze, followed by an additional drop within 4 wk. The amount of this latter decrease will depend on the perennial grass. For more information call Dr. Mislevy at 863-735-1314.