

Forage Production Potential of Sixteen Bermudagrass Selections

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Summary

Sixteen bermudagrass hybrids were compared for seasonal and total dry matter production during each year of a 3-year period. Yields were hand-clipped from small areas within each plot and complete plot defoliation was achieved using cows and calves. Thus, all hybrids were exposed to the physical effects of grazing and trodding. Because of dry conditions during July through September 1982 and 1984, bermudagrass yields were similar for those 2 years. Slightly higher mid-summer rainfall in 1983 allowed total yields in excess of 12 tons dry matter. The 3-year average yields indicated that Coastal bermudagrass continued to produce as much forage as any of the new plant breeding lines tested. And, because of a mid-summer reduction in dry matter production which was linked directly to a lack of drought resistance, Tifton 44 bermudagrass was one of the lowest forage producing hybrids evaluated.

KEYWORDS: Bermudagrass/dry matter production/
Coastal/Tifton 44.

Introduction

Coastal bermudagrass has been used extensively throughout the South and Southeastern United States for a pasture and hay crop for more than 35 years. Plant breeders have shown that substantial improvements in nutritive value were possible with certain hybrid bermudagrasses. Thus, there are plant breeding materials available which are potential replacements for Coastal bermudagrass. This trial was initiated to evaluate some of the hybrid bermudagrasses for dry matter, stand maintenance and vigor, and to compare these selections with Coastal and Tifton 44 bermudagrass.

Procedure

Fourteen bermudagrass hybrids from Dr. Glenn Burton's breeding program (USDA, Tifton, Georgia), along with Coastal and Tifton 44 bermudagrasses, were planted in 8 x 20 feet plots. An 8-foot fallow border was left between all plots to prevent soil contamination from the vigorous, stoloniferous types. Plots were established in 1981 and were not harvested until the 1982 growing season. Two, 1-square foot, quadrants were hand-clipped from each plot when grass reached approximately 8 to 12 inches in height. During 1982, plots were harvested to a 2-inch stubble height; whereas, in 1983 and 1984, plots were harvested to ground level (0-inch stubble height). After collecting yield data from the plots, cows and calves were allowed to graze the entire area. A large number of animals were used so that the plots were grazed to an approximate 1-inch height as rapidly as possible (2-day period). Animals were removed from the plots and the grass was allowed to grow until the next harvest period. Fertilizer was applied during the growing season for annual rates of 580-100-100, 340-100-100, and 245-100-100 lb/A N-P₂O₅-K₂O, respectively for 1982, 1984, and 1984. A high nitrogen rate was used during 1982 to discourage spot grazing due to defecation areas. During the second year and third years, however, spot grazing was not a problem in the plots.

Results and Discussion

Monthly rainfall during the bermudagrass growing seasons of 1982-84 and their deviation from a 17-year average are shown in Table 1. Drought-like conditions

TABLE 1. MONTHLY RAINFALL DURING A 3-YEAR EVALUATION OF BERMUDAGRASS SELECTIONS

Month	1982	1983	1984	17-year Average
April	3.87	0.24	1.58	3.87
May	5.48	7.22	2.74	4.40
June	4.89	8.45	1.75	4.27
July	1.40	1.57	1.75	2.89
August	0.43	2.17	0.84	1.74
September	0.74	1.18	1.35	4.02
October	6.58	2.82	9.34	4.16

susceptible soils of the lower South. From the selections evaluated in this trial, Coastal remains as one of the most reliable hybrid bermudagrasses available for improved pasture and hay.

The use of cows and calves as “mob grazers” was an effective and efficient method of evaluating new cultivars for resistances to grazing pressures. However, since the defoliation scheme was established to harvest forage after some accumulation time, this technique as employed simulated rotational rather than continuous grazing. A modification of this technique may be necessary to simulate continuous grazing.