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Evaluation of Bermudagrass Selections for South Texas (1983-84)

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Summary

Ten bermudagrass selections (*Cynodon dactylon* and *Cynodon nlemfuensis*) plus a local ecotype of African stargrass (*Cynodon plectostachyus*) were evaluated for forage dry matter production during 1983 and 1984. Plots were harvested at 6-week intervals and annual dry matter yields ranged from 5 tons/A for NK-37 to more than 7.5 tons/A for Tifton 68. Of the released lines evaluated in this study, Tifton 68 and Brazos yielded significantly more than Coastal, Tifton 44, or NK-37.

Introduction

Bermudagrass is considered generally to be the most important pasture species in Texas. During the past 20 years, a considerable effort has been devoted to the evaluation of promising new hybrids for improved tolerance, yield, and forage quality at many locations throughout Texas (Holt 1984; Holt and Conrad, 1981, 1984; Rouquette and Florence, 1984). However, little information is available concerning the performance of these hybrids under irrigated sub-tropical conditions. The objective of this study was to evaluate the production potential, disease tolerance, and insect tolerance of selected bermudagrass hybrids under irrigation at Weslaco.

Procedures

Five experimental bermudagrass selections (B-1, B-2, B-12, B-13, and P-7) a local ecotype of African stargrass, and five commercially available cultivars (Brazos, Coastal, NK-37, Tifton 44, and Tifton 68) were established in 200-square foot plots in April 1983. The plots were arranged in a randomized complete block design with three replications on a Raymondville clay loam soil.

During establishment, the plots were irrigated at 6-week intervals to facilitate establishment. Clipping was initiated in July 1983 when approximately one-half of the plots were completely covered with vegetation.

Fifty pounds per acre of nitrogen (N), phosphorus (P), and potassium (K) were applied to the plots in spring 1983 and 1984. Thereafter, 50 lb/A of N was applied at 6-week intervals. Supplemental irrigation was applied at 6-week intervals regardless of rainfall.

Forage yields were determined by harvesting a 3.3 x 17-foot swath from each plot. Grab samples were taken and dried at 60°C for 48 hours to determine dry matter percentage.

KEYWORDS: Bermudagrass hybrids/forage yield/cultivars.

Results

Cumulative dry matter production for 1983 and 1984 is shown in Table 1. Differences in total dry matter production for 1983 were directly related to rate of establishment with Tifton 68, B-1, B-2, B-12, B-13, and African stargrass being superior to other entries for rate of establishment.

Dry matter yields for 1984 were reduced greatly due to drought. Although plots received irrigation at 6-week intervals, low infiltration rates apparently restricted the recharge of the soil profile.

The cultivars Tifton 68, Brazos, and selections B-12 and B-13 were the highest yielding entries in 1984. Coastal, which has been shown consistently to be one of the highest yielding entries at College Station (Holt, 1984; Holt and Conrad, 1981) and Overton (Rouquette and Florence, 1984) ranked eighth among 11 entries during the first 2 years of evaluation at Weslaco (Table 2).

Most entries showed adequate levels of disease and insect tolerance during 1983 and 1984. African stargrass and line B-2 were both found to be susceptible to leaf rust. The other entries displayed little susceptibility under field conditions.

All entries were affected by leaf feeding beetles of the family Chrysomelidae throughout the 1983 and 1984

TABLE 1. BERMUDAGRASS YIELDS AT WESLACO, TEXAS

Entry	1983	Year	
		1984	Total
Tifton-68	14,035	17,413	31,448
B-13	14,219	16,766	30,985
B-12	13,588	17,071	30,659
B-1	12,036	15,882	27,918
Brazos	9,110	17,234	26,344
P-7	11,273	13,904	25,177
B-2	12,232	12,817	25,050
Coastal	10,419	14,117	24,536
Stargrass	10,152	13,756	23,908
Tifton 44	8,120	13,018	21,138
NK-37	8,968	11,490	20,457
Mean	11,287	14,861	25,926
LSD (0.05)	2,688	3,711	4,409

TABLE 2. RELATIVE RANKING OF DRY MATTER YIELDS OF BERMUDAGRASS CULTIVARS¹

Entry	Location		
	College Station ²	Weslaco ³	Overton ³
B-13	1	2	4
P-7	2	6	-
Coastal	3	8	3
B-12	4	3	5
B-1	5	4	16
Brazos	6	5	-
Tifton 44	7	10	13
B-2	8	7	14

¹Rankings; 1 = highest yielding cultivar.

²3-year average.

³2-year average.

summers. However, these insects did little damage to the plants and there were apparently no differences in susceptibility between genotypes.

Likewise, all genotypes were susceptible to rice stem borer (*Eoreuma loftini* Dyar). While all genotypes were susceptible, the number of tillers damaged was generally below 1 percent in small-plot evaluations. However, a large increase block of Tifton 68 was shown to be a desirable host for rice borer and the cultivar should be regarded as very susceptible to damage by this insect.

Literature Cited

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