

**Forage Research
In Texas,
1986**

Performance of Bermudagrass Hybrids and Cultivars in South Texas

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Summary

Ten different bermudagrasses were established in plots at Beeville in 1982. After three years of yield and laboratory quality evaluation, one new cultivar (Tifton 68) and two experimental lines (T-13 and T-14) have been identified as having some superior characteristics. Unfortunately, Tifton 68, which is superior in both yield and quality to Coastal, does not have rhizomes and will require irrigation to insure a high probability of establishment. Experimental lines T-13 and T-14 averaged 35 and 44 percent higher in dry matter yield, respectively, than Coastal and averaged 7 and 3 percent higher in in vitro dry matter digestibility (IVDMD). Both of these lines do have rhizomes and will be increased for further evaluation.

Introduction

Coastal bermudagrass has been and continues to be one of the most widely grown perennial warm season grasses in South Texas. However, new cultivars and experimental lines are continually being evaluated in an attempt to find a superior cultivar. The objective of this study was to determine if any of the experimental lines of bermudagrass were superior to Coastal or Brazos bermudagrass. The characteristics evaluated in these plots were: 1) dry matter yield, 2) persistence, 3) forage quality, and 4) disease resistance.

Procedures

Plots were planted from sprigs on May 5, 1982. The material planted included Coastal, Brazos, Tifton 44, Tifton 68, P-2, P-5, T-1, T-2, T-13, and T-14. Tifton 68 was known as "74-68" when this planting was made. The area received 100 lb of N and 60 lb of P₂O₅/A on May 20, 1982. No yield harvests were made in 1982, but ground cover, weediness, and height notes were taken in December of 1982. Standard fertilizer practice for these plots has been to apply 100 lb/A of 0-46-0 in the spring plus 50 lb of N/A in March and after each summer harvest. No N fertilizer was applied later than mid-September. Chemical weed control (2,4-D) was used as needed each spring. Yields were determined by harvesting the middle 3 feet of each plot. Samples were saved for dry matter determination and for subsequent laboratory quality analysis.

Results and Discussion

The lowest weed scores and best cover ratings at the end of the establishment year were for T-14 and Coastal. The highest weed scores and worst cover ratings were for Tifton 44, Brazos, P-2, and P-5. Total dry matter yields for 1983, 1984, and 1985 and average IVDMD for 1983 and 1984 are given in Table 1.

In reviewing the yield data, Tifton 44 was inferior to Coastal each year. Brazos was superior to Coastal only in the first year. Tifton 68 was superior to Coastal every year.

TABLE 1. SEASONAL YIELD AND SEASONAL AVERAGE IN VITRO DRY MATTER DIGESTIBILITY (IVDMD) OF BERMUDAGRASSES GROWN AT TAES-BEEVILLE

Cultivar or Exp. Line	Total Yield ¹			Average IVDMD ¹	
	1983	1984	1985	1983	1984
	Pounds/Acre			Percent	
Coastal	7,000	6,278	6,758	51.1	46.5
Brazos	9,461	6,368	6,283	51.9	49.7
Tifton 44	5,251	5,944	5,314	51.7	47.2
Tifton 68	9,433	6,992	8,169	56.9	55.7
P-2	8,991	6,933	7,399	53.2	47.0
P-5	8,302	6,830	6,934	54.4	50.8
T-1	9,661	7,501	6,202	53.6	51.5
T-2	7,884	6,490	6,537	54.6	55.1
T-13	9,544	7,819	9,795	53.5	51.3
T-14	10,907	7,702	10,310	52.3	48.6

¹Total yields and average IVDMD values are a sum or average of 5, 3, and 3 harvests for 1983, 1984, and 1985, respectively.

Two experimental lines (T-13 and T-14) stand out as being superior to Coastal. None of the other experimental lines seem to have any consistent yield advantage over Coastal.

In reviewing the average quality values (IVDMD), the bermudagrasses which have a yield advantage over Coastal also have IVDMD values equal to or greater than Coastal. Tifton 68 has consistently shown superior quality and yield. The problem with Tifton 68 is that it contains no rhizomes; therefore, it must be propagated by planting stolons. This is a serious problem with respect to establishment of this cultivar in South Texas. This aspect is going to limit its widespread use unless irrigation is available for establishment.

Experimental lines T-13 and T-14 do have rhizomes, and these two lines will be increased for further evaluation. These two lines have also been evaluated at Overton and College Station, and T-13 has been evaluated in Weslaco. Both have performed well in plots at all locations with T-13 (B-13) showing consistent yield superiority.

Winter tolerance development was evaluated by field observations and quantified in terms of bermudagrass yields each following year through early summer. In vitro digestibility analyses were also used to monitor forage quality during the period of evaluation.