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BERMUDAGRASS VARIETY TEST AT OVERTON - 1994

G. W. Evers, D. S. Doctorian, and A. D. Davidson

Summary

Nine varieties and three experimental lines of bermudagrass (*Cynodon dactylon* [L.] Pers.) were established at the Texas A&M University Agricultural Research and Extension Center at Overton in 1991 in a small plot study. In 1994, 3 years after establishment, there was no significant difference in yield (14,000 lbs/acre) among 'Brazos', 'Coastal', 'Tifton 78', 'Tifton 44', 'Tifton 85', 'Jiggs', and experimental lines Overton and 74X12-6. 'World Feeder' bermudagrass produced 2000 to 3000 lbs/acre less and 'Grazor' and line 16-12 4000 to 5000 lbs/acre less. Other attributes such as rate of establishment, cold and drought tolerance, and forage quality are discussed.

Introduction

Bermudagrass is one of the most widespread and valuable forage species grown in the southeastern United States. Its area of adaptation is south of a line from Virginia to southern Kansas (Burton and Hanna, 1985), and it can be grown in the southwest under irrigation. 'Coastal', the first hybrid bermudagrass, was released in 1943 and is grown on more acres than any other variety. Adaptability to sandy, low pH soils, good drought tolerance because of a deep root system, and tolerance to close, frequent grazing are several of the reasons for its widespread use. During recent years, new hybrids and ecotypes have become available with more cold tolerance, improved digestibility, faster establishment, or better adaptability to loam and clay soils (Eichhorn, 1984; Holt et al., 1978). Eight commercially available varieties and three experimental selections were planted at Overton in 1991 and compared to Coastal. Performance from 1991 to 1993 has been reported earlier (Evers et al., 1995). This paper will report the forage production in 1994.

Keywords: bermudagrass / *Cynodon dactylon* (L.) pers. / adaptability

Procedures

Establishment and management practices from 1991 to 1993 have been reported previously (Evers et al., 1995). Soil analysis of the test site in March 1994 showed a pH of 6.1, very low in N (1 ppm), high in P (46 ppm), and low in K (70 ppm). Fertilization was 100 lbs/acre of N, P_2O_5 and K_2O on 8 Apr 1994. An additional 75 lbs/acre of N and K_2O were applied after each harvest for a season total of 400, 100 and 400 lbs/acre of N, P_2O_5 and K_2O , respectively. Broadleaf weeds were controlled by applying 2 lbs a.i./acre of 2,4-D on 23 March 1994. Beginning on May 13, the study was harvested monthly for a total of six harvests. A subsample of the harvested forage was dried for 48 hr at 140°F to determine dry matter percentage. Mean separation was determined by Waller-Duncan Multiple Range Test at .05 level.

Results and Discussion

Brazos, Coastal, Tifton 78, Tifton 44, and experimental line 74X12-6 had the best early forage production (Table 1). During the remaining five harvests, no entry was consistently the highest or lowest forage producer. There was no significant difference in total yield for Brazos, Coastal, Tifton 78, Tifton 44, Tifton 85, Jiggs, and selections Overton and 74X12-6, with yields of about 7 tons/acre. World Feeder produced about 6 tons and Grazor and line 16-12 about 5 tons/acre.

Performance of the bermudagrass entries over the 4 year period is reported in Table 2. 'NK-37' is a giant bermudagrass established from seed. It had a fair rate of establishment but did not persist after the first winter. Jiggs, Brazos, and Tifton 85 covered well in 1991 and were among the top-yielding entries during the study. Grazor covered well but was low-yielding because of its prostrate growth habit which limits forage production under a hay type harvesting system. Coastal and entry 74X12-6 were slow to cover which resulted in very low yields in 1992 but were equal to the top producing entries by 1994. World Feeder was also slow to cover and was less productive than most other varieties because of a shorter growth habit.

Tifton 44 and Grazor are not as drought tolerant as the other varieties. Tifton 44 will turn brown and go dormant during hot, dry summers on deep sandy soils in East Texas. However, Tifton 44 is more cold tolerant than the other varieties. Tifton 78 and Tifton 85 are reported to be less cold tolerant than Coastal. We have not observed cold damage on any entries in this

study, but winters have been average or mild. High rates of K fertilizer (240 to 400 lb/acre) were used in this study which has been shown to improve winter survival because of better rhizome production. Winter survival of these two varieties can be improved by leaving 4 to 6 in. of growth in the autumn before the first frost. From the forage quality standpoint, Tifton 78 and 85 are higher than Coastal.

Coastal is the most widely planted hybrid bermudagrass in the United States. Some of the other varieties may be better than Coastal in a particular attribute, such as rate of establishment or forage quality, but lower than Coastal in other attributes. The best variety for your particular operation will depend on climate, soil type and what class of livestock will utilize the forage.

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Table 1. Forage production of bermudagrass entries at Overton, 1994.

Entries	May 13	June 8	July 11	Aug 10	Sept 12	Nov 1	Total
	-----Dry matter lb/acre-----						
Overton	1324 bc†	2700 abc	2167 ab	2353 ab	4025 abc	2037 a	14606 a
Brazos	2217 a	2988 a	1871 abc	2742 a	3608 abcd	1116 cd	14542 a
Coastal	2015 a	2865 ab	2425 a	2301 ab	3539 bcd	1140 cd	14284 a
Tifton 78	1794 ab	2786 abc	2047 abc	2284 ab	4183 ab	1154 bcd	14248 a
74x12-6	2153 a	2165 cd	1771 bc	2582 a	3385 cd	2108 a	14164 a
Tifton 44	1801 ab	2680 abc	2295 ab	2313 ab	3844 abcd	776 d	13709 a
Tifton 85	863 cde	2599 abc	2420 a	2205 ab	4275 a	1317 bc	13679 a
Jiggs	1131 cd	2508 abcd	1762 bc	2454 ab	3911 abcd	1586 b	13351 a
World Feeder	1375 bc	2673 abc	1054 d	1668 ab	3457 cd	1115 cd	11341 b
16-12	589 de	1885 d	1529 cd	2495 a	2225 e	1002 cd	9726 c
Grazor	468 e	2271 bcd	1046 d	1257 b	3287 d	1006 cd	9335 c

† Values within a column followed by the same letter are not significantly different at 0.05 level, Waller-Duncan Multiple Range Test.

Table 2. Performance of bermudagrass entries from 1991 to 1994 at Overton.

Entry	1991	1992	1993	1994
	establishment ¹	-----dry matter lbs/acre-----		
Jiggs	4.50	13,839 a ²	12,184 ab	13,351 a
Brazos	3.25	11,469 b	10,827 cd	14,542 a
Grazor	3.00	8,566 d	6,689 g	9,335 c
NK-37	2.75	--	--	--
Tifton 85	2.25	11,602 b	12,620 a	13,679 a
16-12	2.25	7,447 d	8,345 f	9,726 c
Tifton 44	2.00	8,532 d	10,496 d	13,709 a
Tifton 78	2.00	7,521 d	10,163 d	14,248 a
Overton	2.00	10,013 c	10,019 de	14,606 a
74X12-6	1.75	5,688 e	9,314 e	14,164 a
Coastal	1.50	5,825 e	11,415 bc	14,284 a
World Feeder	1.00	6,003 e	8,421 f	11,341 b
CV (%)		11	6	9

¹Rating on coverage on 1 Oct 1991 (0 = no cover, 5 = 100% cover).

²Yields within a column followed by the same letter are not significantly different at .05 level, Waller-Duncan.