







Forage Research in Texas

1984

Performance of Bermudagrass Cultivars (1982)

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SUMMARY

Fifteen bermudagrass hybrids not previously tested at College Station along with nine other previously tested hybrids and cultivars were evaluated for yield, low temperature survival and several agronomic characteristics. Yields ranged from 5 tons per acre to 10.6 tons per acre. At least three Georgia hybrids and all of Oklahoma origin hybrids including those with a previous P (Pybas) designation showed excellent field survival at -14°C temperature. Three Oklahoma hybrids and one Georgia hybrid numerically exceeded Coastal in dry matter yield. Tifton 78 (tested as Tifton 78-22) produced about 0.6 tons less forage than Coastal and was equal to Coastal in low temperature field survival.

INTRODUCTION

Bermudagrass is the most important tame pasture grass in the humid areas of Texas. Numerous hybrids have been developed and some of these are in production. Coastal is by far the most extensively used bermudagrass hybrid. Both research and producer experience have indicated several important problems in bermudagrass production and utilization including forage quality, cold hardiness, stand density, tolerance to grazing, disease resistance, and yield. The order of these problems will depend on the geographic area and specific use and management of the crop. Cold hardiness is more important in North Texas while disease resistance may be more important in South Texas. Forage quality is equally important wherever bermudagrass is grown.

EXPERIMENTAL PROCEDURE

Fifteen bermudagrass hybrids not previously tested at College Station, six hybrids from previous tests, and three standard cultivars (Coastal, Tifton 44, Brazos) were planted in 1982. Sources with the prefix Tifton (Table 2) were supplied by Dr. G. W. Burton, Tifton, GA. Entries 6 and 7 are the same as B-1 and B-2, respectively, in the 1980 test (see report entitled "Performance of bermudagrass hybrids and cultivars in the Brazos

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River bottom, 1981-1983). All sources with the prefix 74 (Table 2, entries 13-19) were supplied by Dr. C. M. Taliaferro, Oklahoma State University. The sources with the prefix Pybas are the same as in the report listed above and came from the J. Pybas ranch near Gainesvile, Texas where they had survived two severe winters. Plots, 6 x 20 feet, 4 replications, were planted using four rooted sprigs per plot in July, 1982. Rate of spread was slow because of intermittent moisture stress, and slow spreading hybrids did not produce a ground cover prior to frost. The test site was fertilized with 100 pounds N per acre each on April 29 and June 27, 1983. Harvests were made on May 27, June 23, July 26, August 24 and September 29, 1983.

Sprigs were removed from the plots in February 1984 following extended low temperatures in December and January (low temperatures of approximately -14°C and more than 3 days in which temperature was continuously below 0°C), planted in the greenhouse and percentage of live sprigs determined. Also, sprigs were dug, washed, placed in polyethylene bags and exposed to -4°C temperature in a freezer for 24 hours, then planted in the greenhouse to evaluate survival.

RESULTS AND DISCUSSION

Yields ranged from 5.1 tons per acre to 11.6 tons per acre in 1983 (Table 1). Coastal produced 10.1 tons, Tifton 44 8.8 tons and Brazos 8.0 tons of dry matter per acre. Neither Brazos nor Tifton 44 developed a good stand in 1982. Yields of these cultivars, and especially Brazos, were much lower than Coastal at the first two cuttings but exceeded Coastal at the final two cuttings. The somewhat slower rate of spread and the wider leaves and stems of Brazos are indicated in the data in Table 2.

The excellent cold hardiness of Brazos, all Oklahoma sources and all Phybas entries is shown in Table 2. Coastal and Tifton 44 showed excellent field survival but slightly less laboratory freezer survival than some of the other sources. Tifton 79-17, and 78-22 showed excellent field survival but less laboratory freezer survival than Coastal and Tifton 44. It would appear that most of the other Tifton sources lack adequate cold hardiness. Tifton 80-12 performed differently in the two cold tests. Only 47% of the material survived in the field but all of the live sprigs survived the laboratory test.

Tifton 78-22 was released by USDA-ARS and the Georgia Coastal Plain Experiment Station in 1984 as Tifton 78. It produced 9.5 tons of dry matter in 1983 compared with 10.1 tons by Coastal and was equal to Coastal in low temperature survival in the field. Georgia results indicate that it has somewhat higher dry matter digestibility than Coastal with about 10% better animal gains than from Coastal.

Forage yield of bermudagrass cultivars at College Station, 1983 Table 1.

Total	23299 a	22114 a-b		20858 a-d																				10137 n	6
Sept 29	4284	3563	4067	3630	3135	4343	3389	3982	3292	4452	4070	3424	3847	3388	4241	3340	4118	3894	3147	4479	2822	2311	1832	1446	Ou
Harvest Aug 24	3015	3677	3166	2442	2175	2754	2960	2302	2381	2301	2487	2309	1748	2985	2989	2943	3671	2635	2061	2702	2047	1872	2411	1214	
Date of Harvest July 26 Aug 24	5493	5332	4430	4338	5525	4458	4468	3825	4219	3698	4879	4380	3797	4168	4558	4780	3877	3995	2964	3871	3530	2913	2076	2085	
June 23	3856	3270	3354	3337	3410	3454	3600	2128	2689	2385	1984	2895	2374	2774	2420	3199	2072	2597	2328	2216	2422	2156	1647	2167	
May 27	6651	6272	6011	7111	5572	4105	4581	6533	5921	5183	4362	4682	5898	3742	2816	2609	2269	2878	5072	2118	3717	3768	4717	3225	
Cultivar	Tifton 80-10	74-x-17-8	74-x-12-12	74-x-8-1	Coastal	74-x-11-2	Tifton 78-22	Tifton 79-17	Tifton 79-9	Tifton 79-16	74-x-19-1	Tifton 44	Tifton 79-13	74-x-9-1	Pybas 2	Pybas 5	Brazos	Pybas 4	Tifton 80-5	Pybas 1	Tifton 80-2	Tifton 79-6	74-x-12-1	Tifton 80-12	
	11	16	14	15	1	19	m	∞	2	7	18	2	9	17	22	24	20	23	10	21	6	4	13	12	5

Total yields followed by a common letter are not significantly different at the 0.05 level.

Table 2. Agronomic Characteristic ratings of bermudagrass hybrids, 1983

## Vigor Growth Habit 1		Cultivar	7	Agronomic	ratings, fall	1983			Low temp.	. survival
Coastal Tifton 78-22 Tifton 79-6 Tifton 79-9 Tifton 79-9 Tifton 79-13 Tifton 79-13 Tifton 79-13 Tifton 79-15 Tifton 79-15 Tifton 79-15 Tifton 80-2 Tifton 80-2 Tifton 80-15 Ti			Spread	Density	Texture	Vigor	Gre	with Habit	Field	Freezer
Coastal 3 2 1 3 3 97 Tifton 79-6 5 4 1 97 Tifton 79-6 5 4 4 2 1 Tifton 79-13 2 4 4 2 1 Tifton 79-13 2 4 4 2 1 Tifton 79-17 4 3 4 4 2 1 Tifton 80-2 3 4 4 2 1 100 Tifton 80-1 3 4 4 2 4 <			l=best	1=dense	l=fine	l=best		1=short	9/0	96
Tifton 44 Tifton 44 Tifton 78-22 Tifton 79-6 Tifton 79-9 Tifton 79-9 Tifton 79-13 Tifton 79-13 Tifton 80-12 Tifton 80-1	П	Coastal	m	2	1	т		m	97	72
Tifton 78-22 2 3 2 3 3 100 Tifton 79-6 5 4 5 3 5 67 Tifton 79-13 2 4 4 2 1 100 Tifton 79-13 2 4 4 2 3 37 Tifton 80-2 3 4 4 2 3 3 37 Tifton 80-2 5 3 4 4 4 2 1 1 5 100 Tifton 80-10 3 4 4 2 1 1 5 4 4 2 100 Tifton 80-10 3 4 4 2 1 1 5 1 1 5 5 1 1 5 5 1 1 5 5 1 1 1 1	2		8	1	2	4		1	97	79
Tifton 79-6 5 4 5 3 5 67 Tifton 79-9 2 4 4 4 2 1 100 Tifton 79-13 2 4 4 4 2 3 3 37 Tifton 79-13 3 4 4 3 3 3 100 Tifton 80-2 5 5 1 3 3 100 Tifton 80-10 3 4 4 5 5 1 5 1 60 Tifton 80-10 3 4 4 5 5 3 2 100 Tifton 80-12 5 5 5 4 4 4 4 7 Tifton 80-12 1 2 1 3 2 100 Tifton 80-12 5 5 5 4 4 4 4 7 Tifton 80-12 5 5 5 4 4 4 4 7 Tifton 80-12 1 2 2 3 3 3 100 Tifton 80-12 2 2 2 3 3 3 100 Tifton 80-12 2 2 2 4 4 2 4 100 Tifton 80-12 2 2 2 4 4 100 Fybas 1 1 2 2 1 2 2 4 4 100 Fybas 2 2 2 2 4 4 100 Fybas 4 1 3 3 2 1 2 2 4 4 100 Fybas 4 1 3 3 2 1 2 2 4 4 100 Fybas 5 2 2 2 4 4 100 Fybas 5 2 2 4 4 100 Fybas 6 1 1 3 2 1 4 4 100 Fybas 7 1 3 3 2 1 100	3		2	8	2	m		e	100	43
Tifton 79-9 2 4 4 2 3 37 Tifton 79-13 2 4 4 4 2 3 37 Tifton 78-16 3 3 4 4 3 3 31 Tifton 79-17 4 3 5 1 3 3 100 Tifton 80-5 3 4 4 4 5 3 3 100 Tifton 80-10 3 4 4 5 5 1 5 6 4 4 4 7 Tifton 80-10 3 4 4 5 5 3 2 5 6 60 Tifton 80-12 5 5 5 5 4 4 4 4 7 Tifton 80-12 5 5 5 5 4 4 4 4 7 Tifton 80-12 5 5 5 5 4 4 4 7 Tifton 80-12 5 5 5 5 4 4 4 7 Tifton 80-12 5 5 5 5 4 4 4 7 Tifton 80-12 5 5 5 5 4 4 4 7 Tifton 80-12 5 5 5 5 4 4 4 7 Tifton 80-12 5 5 5 5 4 4 4 7 Tifton 80-12 5 5 5 5 4 4 7 Tifton 80-12 5 5 5 7 4 7 Tifton 80-12 5 5 5 7 7 Tifton 80-12 5 5 5 7 7 Tifton 80-12 5 5 7 7 Tifton 80-12 5 5 7 7 Tifton 80-12 7 Tifton 80-	4		2	4	S	m		S		55
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