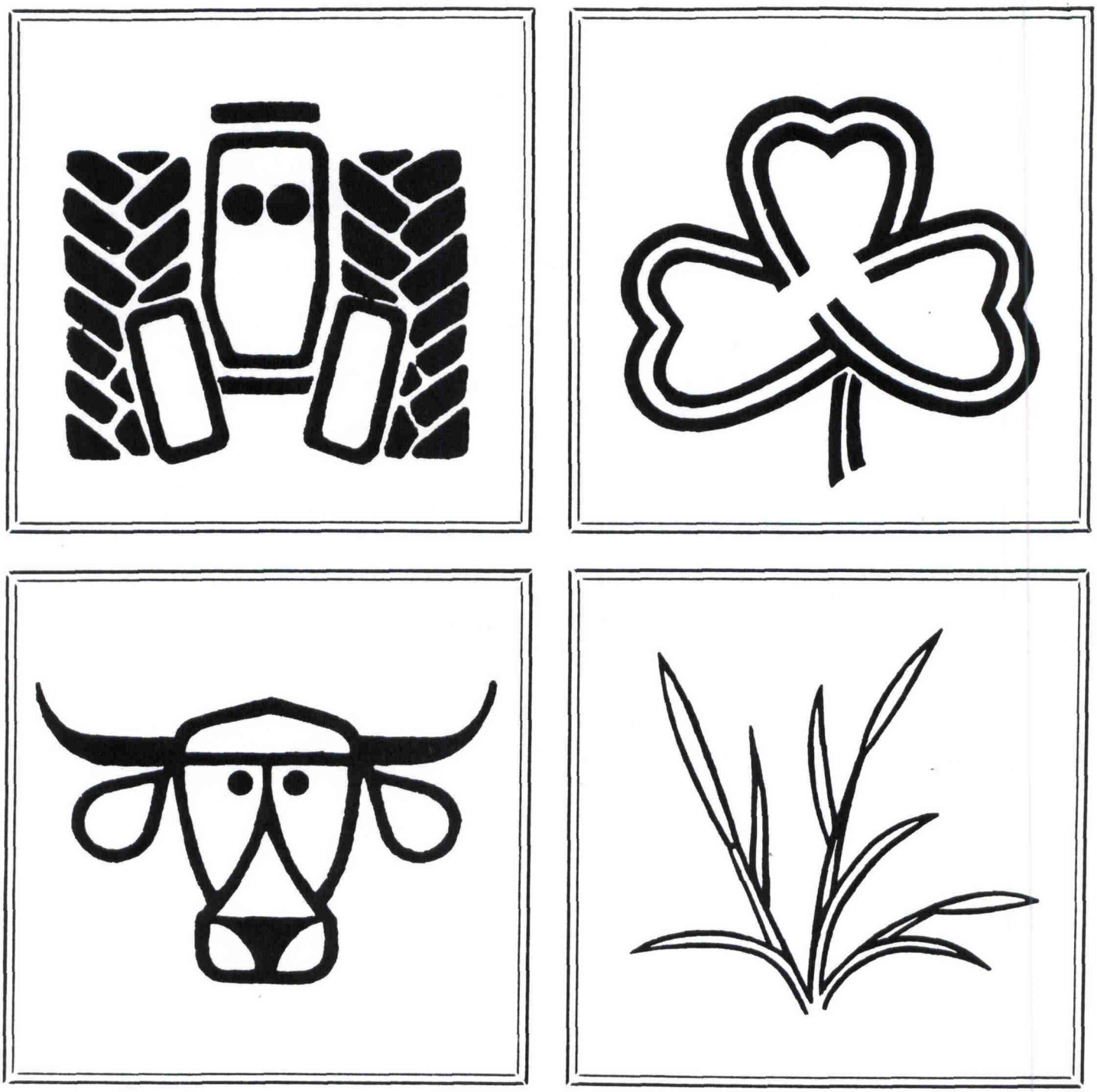
CPR—4253
October 1984



Forage Research in Texas

1984

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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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KEY WORDS: Bermudagrass hybrids/ forage yield/ density/ forage quality/ low temperature survival.

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.

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

	Cultivar	Date of Harvest May 27	June 23	July 26	Aug 24	Sept 29	Total	
11	Tifton 80-10	6651	3856	5493	3015	4284	23299	a
16	74-x-17-8	6272	3270	5332	3677	3563	22114	a-b
14	74-x-12-12	6011	3354	4430	3166	4067	21028	a-c
15	74-x-8-1	7111	3337	4338	2442	3630	20858	a-d
1	Coastal	5572	3410	5525	2175	3135	20117	b-e
19	74-x-11-2	4105	3454	4458	2754	4343	19114	c-f
3	Tifton 78-22	4581	3600	4468	2960	3389	18998	c-f
8	Tifton 79-17	6533	2128	3825	2302	3982	18770	c-g
5	Tifton 79-9	5921	2689	4219	2381	3292	18502	c-h
7	Tifton 79-16	5183	2385	3698	2301	4452	18019	d-h
18	74-x-19-1	4362	1984	4879	2487	4070	17782	e-i
2	Tifton 44	4682	2895	4380	2309	3424	17690	e-i
6	Tifton 79-13	5898	2374	3797	1748	3847	17664	e-i
17	74-x-9-1	3742	2774	4168	2985	3388	17057	f-i
22	Pybas 2	2816	2420	4558	2989	4241	17024	f-i
24	Pybas 5	2609	3199	4780	2943	3340	16735	g-j
20	Brazos	2269	2072	3877	3671	4118	16007	g-k
23	Pybas 4	2878	2597	3995	2635	3894	15999	g-k
10	Tifton 80-5	5072	2328	2964	2061	3147	15572	h-k
21	Pybas 1	2118	2216	3871	2702	4479	15386	i-l
9	Tifton 80-2	3717	2422	3530	2047	2822	14538	j-m
4	Tifton 79-6	3768	2156	2913	1872	2311	13020	l-m
13	74-x-12-1	4717	1647	2076	2411	1832	12683	m
12	Tifton 80-12	3225	2167	2085	1214	1446	10137	n

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

	Cultivar	Agronomic ratings, fall 1983					Low temp. survival	
		Spread 1=best	Density 1=dense	Texture 1=fine	Vigor 1=best	Growth Habit 1=short	Field %	Freezer %
1	Coastal	3	2	1	3	3	97	72
2	Tifton 44	3	1	2	4	1	97	79
3	Tifton 78-22	2	3	2	3	3	100	43
4	Tifton 79-6	5	4	5	3	5	67	55
5	Tifton 79-9	2	4	4	2	1	100	53
6	Tifton 79-13	2	4	4	2	3	37	9
7	Tifton 76-16	3	3	4	3	3	33	70
8	Tifton 79-17	4	3	5	1	3	100	80
9	Tifton 80-2	5		5	1	5	40	58
10	Tifton 80-5	3	4	4	2	1	60	44
11	Tifton 80-10	3	4	5	3	2	50	40
12	Tifton 80-12	5	5	5	4	4	47	107
13	74-X-12-1	1	2	1	3	2	100	87
14	74-X-12-12	4	5	4	2	5	100	90
15	74-X-8-1	2	2	3	3	3	100	93
16	74-X-17-8	2	2	4	2	3	100	77
17	74-X-9-1	2	2	3	3	2	100	90
18	74-X-19-1	2	2	2	3	3	100	87
19	74-X-11-2	4	3	4	2	4	100	100
20	Brazos	4	3	3	3		100	90
21	Pybas 1	1	2	1	2	4	100	75
22	Pybas 2	2	2	2	2	4	100	97
23	Pybas 4	1	3	2	1	2	97	97
24	Pybas 5	2	2	4	2	4	100	97