



Forage Research in Texas

1984

Cool Season Perennial Grass Test - Dallas

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SUMMARY

Ten tall fescue and three hardinggrass cultivars were tested for dry matter production and protein content. The experimental line Temple-1 and the cultivars Ky-31 and Kenhy had the highest dry matter production with a three year average of 8662 lb. dry matter per acre. There were no significant differences in yield of the three hardinggrass lines tested. Fawn tall fescue had the lowest production with a three year average of only 5664 lb. per acre. S. D. hardinggrass had the highest protein content of all the grasses tested with an average of 20 percent. There were no significant differences in the protein content of the tall fescues with averages of 17 to 18 percent.

Introduction

Tall fescue is probably the most widely adapted temperate perennial grass and is tolerant of hot, dry summers that exist in Northeast Texas. Tall fescue has not gained popularity in Texas because of toxicity problems frequently encountered. With the discovery that these toxicity problems are greatly reduced in tall fescue free of the endophyte Epichloe typhina syn. Acremonium coenophialum there has been an increased interest in its utilization for forage in Texas. The other temperate perennial grass that have been utilized in Texas is hardinggrass. Although hardinggrass has good tolerance to the hot, dry summers, poor seedling vigor thus difficulty in establishing and maintaining stands significantly reduces its use. This study was undertaken to determine if the experimental lines of tall fescue and hardinggrass developed at Dallas were superior to standard cultivars in production and persistence.

Procedure

Ten tall fescues and three hardinggrasses (Table 1) were planted 14 Oct 80 in a randomized block and good stands were obtained in all plots. Plots were 4 feet wide (4 rows spaced 1 foot apart) by 15 feet long. Eight feet of the two center rows were harvested using a flail harvester for yield determinations. Samples were collected and oven dried at 149F. This material was

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used to determine protein content by micro-Kjeldahl. Fertility consisted of 200 lb. per acre of 33-0-0 and 100 lb. per acre of 18-46-0 in February, 1981 and then 200 lb. per acre of 33-0-0 and 100 lb. per acre of 18-46-0 each fall.

Results and Discussion

Temple-1, Ky-31 and Kenhy had the highest mean yield of all entries with Fawn being the lowest (Table 2). There were no differences in the average protein content of the tall fescues with mean of all harvest being 17 or 18 percent protein. Yield of the three hardinggrasses was similar (Table 2). S. D. hardinggrass had the highest percent protein of all entries (Table 3).

If the average yields of the 80-81 growing season, the year of establishment, are excluded then the mean yield of PI-26 and PI-144 with 9291 and 8669 would have the highest yields. This indicates that Temple-1, Ky-31 and Kenhy probably has greater seedling vigor than the other entries and to adequately test for yield and presistance a test should be conducted longer than 3 years. The lack of variation among the tall fescues indicate little progress could be made through breeding for protein content using this material.

Table 1. Source of seed for tall fescue and hardinggrass material tested.

<u>Cultivar</u>	<u>Species</u>	<u>Source of seed</u>
Ky-31	Tall fescue	University of Kentucky
Kenhy	"	"
Temple-1	"	TAES Dallas
PI-144	"	"
PI-26	"	"
S-Sel	"	"
PI-25	"	"
Kaspa	"	Ring Around Products
Jepel	"	"
Fawn	"	Oregon State University
TAM Wintergreen	Hardinggrass	TAES Foundation seed
S. D.	"	TAES Dallas
S. G.	"	"

Table 2. Dry matter production of tall fescue and hardinggrass at Dallas.

Cultivar	80-81 Growing Season		81-82 Growing Season		82-83 Growing Season		Mean per growing season
	7May81	29Jun81	7Dec81	13Apr82	1Jun82	9Jun83	
	4351	6201	793	3188	4280	8261	7977
Temple-1	4206	6336	455	3216	4014	7685	8323
Ky-31	4065	6155	456	2260	4240	6956	7441
Kenhy	3071	3888	2016	842	4697	7555	8574
S. G. 2/	3785	3751	1319	599	4533	6451	8409
TAM Wintergreen ^{2/}	1288	3880	1515	2906	4016	8437	8902
PI-144	933	2847	3076	1351	3982	8409	10173
PI-26	1500	3649	1681	2530	4009	8220	8821
Kaspa	2938	3468	1915	625	4167	6707	8285
S. D. 2/	503	1750	1065	2070	4007	7142	9494
S-Sel	1329	3830	1012	900	3569	5481	7707
Jepel	458	2020	1435	1859	3626	6920	8176
PI-25	1859	3742	341	2254	2395	4990	8818
Fawn							6402
							218
							6184
							286
							7691
							8143
							7441
							8574
							8777
							8902
							10173
							8821
							8285
							9494
							7707
							8176
							8818
							6402
							5664
							8930a
							8850a
							8206ab
							7696 b
							7588 b
							7502 b
							7454 b
							7397 b
							7133 bc
							6296 cd
							6116 cd
							6072 cd
							5664 cd

1/Means with a common letter are not significantly different at the .05 level.

2/Hardinggrass lines. All others are tall fescue.

Table 3. The mean protein content of tall fescue and hardinggrass.

Cultivar	Mean Protein Content -----%-----
S. D.	20a 1/
Jepel	18 b
TAM Wintergreen	18 b
S. G.	18 b
Kaspa	18 b
PI-144	17 b
PI-26	17 b
Kenhy	17 b
Fawn	17 b
Temple-1	17 b
PI-25	17 b
S-Sel	17 b
Ky-31	17 b

1/Means with a common letter are not significantly different at the .05 level.