

DISCUSSION

Eleven bermudagrass varieties were clipped five times during the 1999 growing season (table 1). Forage yields were excellent through the early part of the season, since 80 percent of the average total (6,957 pounds) was harvested by July 7. Mid- to late-season forage production was limited by the extreme heat and drought in July, August, and much of September. The low coefficient of variation (C.V.) for total 1999 yields (8.6 percent) is an indication that the data provide a reliable comparison of the varieties.

The four-year forage yield summary for this test is shown in table 2. 'Tifton 85' exhibited the highest yields and the most consistency over the four-year period. Since the initiation of the test in 1996, the winters have been mild in southern Oklahoma, and 'Tifton 85' has responded very well with minimal cold injury and stand loss. Therefore, we still do not have sufficient cold hardiness data to determine how successfully the variety can be grown in southern Oklahoma and north Texas. Other research data suggest that it is less cold tolerant than 'Coastal', which is grown only in the southern states and extreme southern and southeastern Oklahoma.

A new bermudagrass, 'Midland 99' (tested as 74X 21-6), was released officially in 1999. This variety has been tested by the Noble Foundation since 1990 and at many other locations in Oklahoma, Arkansas, Kansas, and Missouri. It is a dependable, highly productive variety with excellent cold tolerance and has outyielded 'Midland' and consistently rivaled or exceeded the performance of 'Tifton 44', which is currently the most commercially important variety grown in Oklahoma. Foundation planting stock of 'Midland 99' will be available again this spring (2000). Application forms for purchase of sprigs are available through the Noble Foundation.

Forage composition during 1999 for each entry in the test is shown in table 3. The reported averages are weighted by the amount of forage harvested at each clipping. The average percentage of total forage produced at each clipping was 24 (May 20), 28 (June 14), 28 (July 7), 9 (August 24), and 11 (October 5). The average crude protein was 13.1 percent in 1999 compared with 13.5 percent in 1998. This year crude protein was highest at the third clipping (July 7) and lowest at the fourth (August 24).

Table 3. Bermudagrass forage composition—1999
Ardmore, OK

Variety or Strain	Dry Matter		Phosphorous	Potassium	Calcium	Magnesium
		Crude Protein				
Weighted average of five forage clippings (%)						
74X 12-6	40.4	12.8	0.211	1.20	0.47	0.268
STW 15-11	37.6	12.8	0.191	1.14	0.37	0.225
Tifton 85	33.0	13.2	0.245	1.81	0.51	0.212
Hardie	36.5	12.3	0.225	1.36	0.41	0.252
Coastal	40.3	13.8	0.247	1.37	0.54	0.266
Russell	38.1	12.9	0.250	1.62	0.64	0.184
Midland 99	38.0	13.0	0.224	1.35	0.42	0.188
Jiggs	34.7	13.3	0.243	1.32	0.83	0.334
Midland	41.1	13.5	0.238	1.53	0.41	0.162
Tifton 44	38.6	12.9	0.225	1.43	0.41	0.219
Quickstand	33.4	13.9	0.264	1.51	0.49	0.213
Average						
	37.4	13.1	0.233	1.42	0.50	0.229

SOME INFLUENCING FACTORS

Location: NF Headquarters Farm, Ardmore, OK.

Soil type: Weatherford fine sandy loam.

Sprigging date: May 14, 1996.

Sprigging method: Sprigged by hand in two-foot rows; sprigs two feet apart in rows (12 sprigs per plot).

Plot size: 7 ft. x 12 ft.

Replications: Three (3).

Fertilizer: Starter was 100 lb. of N/acre on April 8, 1999.

Topdress was 50 lb. of N/acre on May 27 and June 16, 1999.

Weed control: Applied 2, 4-D plus pendimethlin herbicide on March 3, 1999, for control of winter broadleaf weeds and crabgrass. Excellent control of crabgrass throughout the growing season.

Clipping procedure: Grasses were clipped to a height of three inches to simulate rotational grazing. The test varieties were clipped when more productive entries reached a suitable grazing stage. Clipping dates during the season are shown in table 1.

Winter damage: Winter cold damage differences between entries were insignificant.

Temperatures: The low temperature was 12°F on January 4, 1999. Temperatures were 20°F or lower on only eight dates:

Dates	Minimum Temperature (°F)
December 21	18
December 22	13
December 24	20
December 25	16
December 26	20
January 3	16
January 4	12
January 9	16

Rainfall (inches):

Month	97-year average	1998	1999
January	1.77	5.83	1.95
February	2.08	1.16	0.12
March	2.88	4.91	3.70
April	3.97	1.12	4.03
May	5.32	0.16	3.93
June	3.91	2.37	3.49
July	2.76	0.01	0.66
August	3.48	1.20	1.51
September	3.60	0.87	6.26
October	3.64	6.43	2.19
Total	33.41	24.06	27.84

Information in this report is inconclusive but should be valuable when used with similar information from other sources.

All available information pertaining to the subject should be used in making conclusions and decisions. This publication is intended to furnish supplemental information to aid decision-making and idea formation.

I would like to acknowledge the following research assistants and associates for their valuable assistance in collecting and analyzing data and preparing this report: Julie Barrick, Bret Flatt, Roger Hartwell, and Jim Johnson.

1999 Forage Yields from Bermudagrass Varieties and Strains

Jerry L. Baker

The Samuel Roberts
NOBLE FOUNDATION, Inc.
P.O. Box 2180
Ardmore, Oklahoma 73402

NF-FOR-00-05

Table 1. Dry forage yields from bermudagrass–1998
Ardmore, OK

Variety or Strain ¹	Clipping Dates					1999 Total
	5/20	6/14	7/7	8/24	10/5	
	Pounds/acre					
74X 12-6	2233	2979	2457	780	1307	9756
STW 15-11	2957	2436	2421	890	1009	9714
Tifton 85	2270	3005	2554	848	943	9620
Hardie	2954	2312	2347	523	1470	9606
Coastal	2023	2789	2570	1030	1070	9481
Russell	2763	2312	2230	1343	745	9393
Midland 99 ²	1734	2468	2738	770	1039	8751
Jiggs	2008	2253	2347	731	962	8301
Midland	1886	2049	2191	837	786	7749
Tifton 44	1689	2086	2202	829	919	7725
Quickstand	561	2372	2335	210	167	5646
	Average					
	2098	2460	2399	799	947	8703
	L.S.D. (0.05) ³					
	610	299	NS ⁴	219	276	1277
	C.V. (%) ⁵					
	17.1	7.1	17.0	16.1	17.1	8.6

¹74X 12-6 and STW 15-11 are experimental strains from Oklahoma State University.

²Midland 99 was previously known as experimental strain 74X 21-6.

³Least significant difference.

⁴Nonsignificant.

⁵Coefficient of variation.

Table 2. Four-year dry forage yields from bermudagrass (1996-98); established May 14, 1996
Ardmore, OK

Variety or Strain	Pounds/Acre				Four-Year Total	Four-Year Average	Average Crude Protein (%) ¹
	1996	1997	1998	1999			
Tifton 85	6796	7020	12975	9620	36411	9103	13.2
Coastal	5134	6300	12077	9481	32992	8248	13.8
74X 12-6	6424	5189	11153	9756	32522	8131	12.8
Hardie	6696	5530	9747	9606	31579	7895	12.3
Midland 99	5407	5352	10604	8751	30114	7529	13.0
STW 15-11	4228	4356	10575	9714	28873	7218	12.8
Russell	4444	4229	10526	9393	28592	7148	12.9
Jiggs	5424	4623	10195	8301	28543	7136	13.3
Tifton 44	5188	4788	8773	7725	26474	6619	12.9
Midland	5495	3785	8195	7749	25224	6306	13.5
Quickstand	3943	1750	5930	5646	17269	4317	13.9
	Average						
	5380	4811	10067	8703	28961	7240	13.1
	L.S.D. (0.05)						
	1402	1516	2029	1277	4673		
	C.V. (%)						
	15.3	18.5	11.8	8.6	9.5		

¹ Includes seventeen clippings, two in 1996 (establishment year), and five each in 1997, 1998, and 1999.