

DISCUSSION

Two bermudagrass variety trials (“old” and “new”) were evaluated for forage production in 2002 and are included in the report. Tests were clipped five times during the growing season (Tables 1 and 3). Moisture distribution and temperatures were good throughout most of the growing season and supported excellent forage yields. Dry weather in late September and early October did limit late-season fall production somewhat.

The “old” variety test, established in May 1996, concluded the seventh year of production and includes 11 varieties or experimental strains. Table 1 shows the forage distribution and total production in dry pounds per acre for each entry in the test. Total average forage yield of 10,094 pounds per acre for the eleven entries was the highest recorded since the test was established. The two new varieties, Midland 99 and 74x12-6 (see Table 1), were the most consistent producers throughout the growing season. Tifton 85 started slow in the spring but recovered well and was the most productive during June, July and August. Jiggs had the slowest spring vigor and production was curtailed throughout most of the growing season.

The seven-year forage yield summary for the “old” test is shown in Table 2. Since the initiation of the test, there have been periodic droughts throughout the seasons that have reduced bermudagrass growth. Drought was particularly severe during July and August of both 1998 and 1999. From 1996-97 through 1999-2000, winters were very mild, resulting in minimal low temperature stress to varieties. The 2000-2001 winter was more severe and caused greater low temperature stress compared to previous winters. Green-up and growth of varieties have differed more dramatically in both the springs of 2001 and 2002. Varieties initiating the latest spring growth the past two years have been Tifton 85 and Jiggs, which may be an indication that they do not have adequate cold hardiness for long-term persistence in southern Oklahoma. However, you should note in Table 1 that, despite slow spring growth of Tifton 85, it recovered sufficiently by summer to provide high yields. Jiggs stands appear to be weakest in the test and seem to be declining with each season of production.

In May 2000, the “new” test was initiated at Ardmore to compare growth and persistence of ten seeded varieties and varietal mixtures with that of three benchmark sprigged varieties, Midland 99, 74x12-6 and Tifton 44. Total production accumulated for each entry of the test in 2002 and two-year average yields are shown in Table 3. Total forage yields averaged 9,411 pounds per acre for the 13 entries, which was 42 percent more than last year (the first year of production). The sprigged types, Midland 99 and 74x12-6, out-yielded all of the seeded entries in the test again this year. The two-seeded varietal mixtures (Mirage/Cd90160 and Rancho Frio) and the variety Giant were more productive than the other pure-seeded varieties. Wrangler, Cheyenne and Guymon were very productive from May through July, but yields dropped sharply as the season progressed. Except for Giant, the varietal mixtures maintained more consistent yields throughout the entire growing season than the pure-seeded varieties.

Table 3. Dry forage yields from seeded “new” bermudagrass, 2001-2002; established May 30, 2000

Variety or blend	2002 Clipping Dates					Total	2-year Average (2001-02)	Average Crude Protein (%)
	5/13	6/17	7/12	8/13	9/12			
	Pounds/acre							
74x12-6*	3,160	3,289	2,211	1,758	1,495	11,914	10,020	14.4
Midland 99*	2,560	3,244	2,037	1,410	1,540	10,791	9,719	14.2
Tifton 44*	3,252	2,639	1,862	1,201	1,518	10,472	9,042	14.4
Giant	2,454	3,180	1,837	1,338	1,123	9,932	8,997	14.9
Mirage/Cd90160	2,401	2,940	1,598	1,214	1,368	9,521	8,388	15.2
Rancho Frio	1,995	2,724	1,795	1,597	1,334	9,445	7,810	13.9
Cd90160	1,905	2,808	1,509	1,377	1,423	9,022	7,584	15.1
Wrangler	2,945	2,124	2,050	937	959	9,015	7,187	15.2
Cheyenne	2,120	2,770	1,659	1,251	1,039	8,839	8,303	14.6
Guymon	2,704	2,411	1,722	931	979	8,747	6,292	16.1
Mirage	2,057	2,739	1,414	1,106	1,280	8,596	7,192	15.2
Common	2,017	2,479	1,424	1,042	1,146	8,108	7,168	14.9
Mohawk	1,615	2,590	1,393	1,096	1,247	7,941	6,352	15.2
	Average							
	2,399	2,764	1,732	1,251	1,265	9,411	8,004	14.9
	L.S.D. (.05)							
	860	482	508	326	244	1,277		
	C.V. (%)							
	25.0	12.2	20.5	18.2	13.5	9.5		

*Sprigged types

SOME INFLUENCING FACTORS

Location: Headquarters Farm, Ardmore, Okla.
 Planting dates: Old test – May 14, 1996; New test – May 30, 2000.
 Soil types: Old test – Weatherford fine sandy loam; New test – Heiden clay.
 Planting method: Sprigged by hand in two-foot rows and sprigs two feet apart in rows.
 Seed was drilled in seven-inch rows and planted one-quarter inch deep.
 Plot size: Old test – 7 feet x 12 feet; New test – 8 feet x 20 feet.
 Replications: Old test – three; New test – four.
 Fertilizer: Old test; starter was 100 pounds of N and 60 pounds of K₂O per acre on April 17, 2002. Topdress was 50 pounds of N on May 20, June 14 and July 9, 2002. New test; starter was 100 pounds of N on April 17, 2002. Topdress was 50 pounds of N on May 20, June 19, and July 12, 2002.
 Weed control: Both tests – applied 2,4-D plus pendimethlin herbicide on Feb. 21, 2002 for control of winter broadleaved weeds and crabgrass. New test – applied Manage herbicide for control of purple nutsedge.
 Clipping procedure: Grasses were clipped to a height of three inches to simulate rotational grazing. The test entries were clipped when more productive entries reached a suitable grazing stage. Clipping dates during the season for each trial are shown in Tables 1 and 3.
 Winter damage: Hard freezes in late February and early March probably delayed spring growth of most entries. Tifton 85 and Jiggs had the slowest spring vigor and appeared to be most affected by cold temperatures.
 Temperatures: The low temperature was 11 F on Jan. 3, Feb. 27 and March 3. Temperatures were 20 F or lower on eight dates.

Temperature Data

Date	Min. Temp. (°F)	Date	Min. Temp. (°F)
Dec. 31	19	Feb.27	11
Jan. 2	17	March 2	16
Jan. 3	11	March 3	11
Feb. 26	19	March 4	18

Month	100-year average	2001	2002
January	1.80	3.40	0.79
February	2.06	5.93	0.87
March	2.92	0.88	4.53
April	4.06	3.62	6.24
May	5.23	6.96	2.58
June	3.91	3.39	2.20
July	2.71	0.00	1.03
August	3.46	1.93	6.10
September	3.62	10.23	1.34
October	3.72	3.97	5.16
Total	33.49	40.31	30.84

Information in this report is inconclusive but should be of great assistance 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.

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2002 FORAGE YIELDS from Bermudagrass Varieties and Strains

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Table 1. Dry forage yields from “old” bermudagrass, 2002; established May 14, 1996, Ardmore, Oklahoma

Variety or Strain ¹	Clipping Dates					2002
	5/9	6/7	7/8	8/7	9/13	Total
	Pounds/acre					
Midland 99 ²	2,525	2,137	3,208	1,799	1,791	11,460
74x12-6 ³	3,158	2,219	2,953	1,449	1,566	11,345
STW 15-11	2,849	1,851	2,965	1,550	2,106	11,321
Tifton 85	1,612	2,277	3,623	2,202	1,472	11,186
Coastal	1,898	2,291	3,584	1,798	1,588	11,159
Tifton 44	2,966	1,505	3,092	1,560	1,693	10,816
Russell	2,456	1,855	3,432	1,680	1,379	10,802
Hardie	1,681	1,743	2,736	1,346	1,937	9,443
Jiggs	1,204	1,799	2,610	1,447	1,349	8,409
Midland	1,515	1,459	2,387	1,003	1,512	7,876
Quickstand	2,109	1,311	2,099	901	786	7,206
	Average					
	2,180	1,859	2,972	1,521	1,562	10,094
	L.S.D.⁴ (.05)					
	596	270	401	331	638	1,597
	C.V.⁵ (%)					
	16.1	8.5	7.9	12.8	24.0	9.3

¹ STW 15-11 is an experimental strain from Oklahoma State University.

² Midland 99 was designated as experimental strain 74X21-6 in 1996, 1997, and 1998.

³ Experimental strain 74x12-6 was originally designated as the variety Ozarka in 2001. However, due to legal ramifications, the variety name is pending as of Feb. 21, 2003.

⁴ Least significant difference.

⁵ Coefficient of variation.

Table 2. Seven-year dry forage yields from “old” bermudagrass; established May 14, 1996, Ardmore, Oklahoma

Variety or Strain	1996	1997	1998	1999	2000	2001	2002	7-year Average	Average
								(1996-2002)	Crude Protein (%)
	Pounds/acre								
Tifton 85	6,796	7,020	12,975	9,620	6,718	9,176	11,186	9,070	13.2
Coastal	5,134	6,300	12,077	9,481	5,850	9,492	11,159	8,499	13.5
74x12-6	6,424	5,189	11,153	9,756	6,486	9,081	11,345	8,491	12.9
Midland 99	5,407	5,352	10,604	8,751	6,165	8,897	11,460	8,091	13.0
Hardie	6,696	5,530	9,747	9,606	5,766	9,155	9,443	7,992	12.4
STW 15-11	4,228	4,356	10,575	9,714	6,362	8,674	11,321	7,890	13.0
Russell	4,444	4,229	10,526	9,393	5,840	9,279	10,802	7,788	13.1
Tifton 44	5,188	4,788	8,773	7,725	6,010	7,498	10,816	7,257	12.9
Jiggs	5,424	4,623	10,195	8,301	5,615	8,041	8,409	7,230	13.2
Midland	5,495	3,785	8,195	7,749	4,978	5,922	7,876	6,286	13.7
Quickstand	3,943	1,750	5,930	5,646	3,766	4,536	7,206	4,682	14.4
	Average								
	5,380	4,811	10,067	8,703	5,778	8,160	10,094	7,570	13.2
	L.S.D. (.05)								
	1,402	1,516	2,029	1,277	1,199	1,418	1,597	542 ¹	
	C.V. (%)								
	15.3	18.5	11.8	8.6	12.2	0.2	9.3	11.7	

¹The LSD (.05) should be used with caution because of a significant variety x year interaction.