

DISCUSSION

Two bermudagrass variety tests ("old" and "new") were evaluated for forage production again in 2003, and results are included in this report. The trials were clipped three times during the growing season (Tables 1 and 3). Moisture was well below normal for the growing season and average forage yields were much lower than in 2002. Dry weather in the winter and early spring delayed the initiation of new spring growth. Rainfall was slightly above normal in May and June, allowing for a quick recovery and excellent forage yields in late spring and early summer. However, hot and dry weather in July and August limited late summer and fall production.

This season marks the eighth year of production from the "old" variety test, established in May 1996, that includes 11 sprigged varieties and experimental strains. Table 1 summarizes forage distribution and total dry matter production for each entry. The total average forage yield of 6,590 pounds per acre for the eleven entries was 35 percent lower than in 2002. Tifton 85 was the most consistent forage producer throughout the season. It was the most productive in the spring, which is contrary to what was seen the previous two springs when it was slow to come out of winter dormancy. Coastal, Russell and Midland 99 also produced excellent early forage.

The eight-year forage yield summary for the "old" test is shown in Table 2. Growing conditions have fluctuated greatly over the duration of the test. Precipitation has been below normal in six of the eight years, with 2003 being the driest year thus far. Summer drought has been particularly evident during most years, with 1998 and 2003 being the worst. Winter temperatures during the period 1996 through 1999 were milder than average. The 2000–2001 winter was the coldest, causing the greatest amount of low-temperature stress. None of the entries have winter killed during the duration of the test, but some have suffered slight freeze injury. Tifton 85 and Jiggs initiated spring growth later than other entries in both 2001 and 2002. However, one should note that despite slow spring growth in those years, Tifton 85 recovered sufficiently by summer to provide high yields. The stand density of the Jiggs variety appears to be weakening with each succeeding year. The yield performance of the less cold-tolerant varieties, Tifton 85 and Coastal, has undoubtedly been enhanced by the exceptionally mild winters during the duration of the test.

Total dry matter production accumulated for each entry of the "new" test in 2003 and three-year average yields are shown in Table 3. Total forage yields averaged 5,562 pounds per acre for the 13 entries, which was 41 percent lower than in 2002. The sprigged types, Ozark and Midland 99, with excellent spring vigor and early forage production, out-yielded all entries in the test again this year. Giant was the earliest and most productive forage variety of the seeded types. It continues to produce more consistently throughout the growing season than the other seeded types in the test. Some of the other seeded types have been very productive in the spring and early summer when moisture is generally abundant and temperatures are mild. However, yields generally decline rapidly as the summer progresses and becomes hotter and drier. Wrangler and Guymon were very slow to recover from winter dormancy this year as indicated by their low yields on the first clipping date.

Table 3. Dry forage yields from seeded "new" bermudagrass, 2001-2003; established May 30, 2000

Variety or strain	2003				2002 Total	2001 Total	3-year Average (2001-2003)	Average Crude Protein (%)
	Clipping dates			Total				
	5/30	7/1	9/17					
	Pounds/acre							
Ozark*	3,442	2,602	1,425	7,469	11,914	8,125	9,169	13.7
Midland 99*	3,131	2,951	891	6,973	10,791	8,647	8,804	13.6
Giant	3,289	2,549	933	6,771	9,932	8,061	8,255	14.9
Tifton 44*	3,160	2,387	793	6,340	10,472	7,611	8,141	14.3
Cheyenne	2,658	2,262	605	5,525	8,839	7,766	7,377	13.9
Mirage/Cd90160	2,635	1,967	426	5,029	9,521	7,255	7,268	14.7
Ranchero Frio	2,773	2,273	824	5,870	9,445	6,175	7,163	14.0
Cd90160	2,401	2,272	604	5,277	9,022	6,145	6,815	14.6
Mirage	3,061	2,070	417	5,548	8,596	5,788	6,644	14.0
Common	2,191	1,854	395	4,440	8,108	6,228	6,259	14.6
Wrangler	1,586	2,030	507	4,123	9,015	5,359	6,166	15.0
Mohawk	2,699	1,565	304	4,568	7,941	4,762	5,757	14.9
Guymon	1,897	1,960	518	4,375	8,747	3,836	5,653	15.4
	Average							
	2,686	2,211	665	5,562	9,411	6,595	7,189	14.4
	L.S.D. (.05)							
	635	440	311	920	1,277	NS	1,125	
	C.V. (%)							
	16.5	13.9	32.6	11.5	9.5	32.5	19.3	

*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 2-foot rows and sprigs 2 feet apart in rows.
 Seed was drilled in 7-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: Both tests; starter was 100 pounds of N on April 15, 2003. Topdress was 50 pounds of N on May 30 and July 1, 2003.
Weed control: Both tests – applied 2,4-D plus pendimethlin herbicide on February 19, 2003 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 3 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: Dry weather and a few hard freezes in January and February delayed the initiation of new spring growth for most entries in the trials.
Temperatures: The low temperature was 12°F on January 24. Temperatures were 20°F or lower on six dates.

Temperature Data

Date	Min. Temp. (°F)	Date	Min. Temp. (°F)
January 17	19	February 7	17
January 23	14	February 24	15
February 24	12	February 25	15

Rainfall (Inches)

Month	101-year average	2002	2003
January	1.78	0.79	0.00
February	2.06	0.87	2.26
March	2.91	4.53	1.44
April	4.02	6.24	0.46
May	5.26	2.58	8.32
June	3.92	2.20	4.71
July	2.69	1.03	0.14
August	3.44	6.10	1.13
September	3.62	1.34	3.90
October	3.68	5.16	0.01
Total	33.38	30.84	22.37

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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2003 Forage Yields from Bermudagrass Varieties and Strains

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Table 1. Dry forage yields from “old” bermudagrass, 2003; established May 14, 1996, Ardmore, Okla.

Variety or strain ¹	Clipping dates			2003 Total	Average Crude Protein (%)
	5/30	7/1	9/17		
	Pounds/acre				
Tifton 85	3,821	2,572	2,407	8,800	10.4
Coastal	3,619	2,460	2,232	8,311	9.6
Russell	3,986	2,055	2,007	8,048	10.0
Midland 99 ²	3,041	2,667	1,643	7,351	10.8
Hardie	2,984	2,720	1,360	7,064	11.1
Ozark ³	2,880	2,466	1,498	6,844	11.8
STW 15-11	3,160	2,328	1,247	6,735	9.5
Jiggs	2,975	2,124	1,584	6,683	10.3
Tifton 44	2,846	1,722	1,197	5,765	10.0
Midland	1,224	1,881	1,059	4,164	11.8
Quickstand	886	1,475	348	2,709	14.0
	Average				
	2,857	2,225	1,508	6,590	10.8
	L.S.D. (.05) ⁴				
	1,002	440	416	1,585	
	C.V. (%) ⁵				
	20.6	11.6	16.2	14.1	

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

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

³Ozark was designated as experimental strain 74x12-6 from 1996 through 2000. In 2001, it was released as the variety, Ozarka. However, due to legal ramifications, the variety was re-named Ozark in 2003.

⁴Least significant difference.

⁵Coefficient of variation.

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

Variety or strain	1996	1997	1998	1999	2000	2001	2002	2003	Eight-year Average (1996-2003)	Average Crude Protein (%)
Tifton 85	6,796	7,020	12,975	9,620	6,718	9,176	11,186	8,800	9,036	12.9
Coastal	5,134	6,300	12,077	9,481	5,850	9,492	11,159	8,311	8,476	13.0
Ozark	6,424	5,189	11,153	9,756	6,486	9,081	11,345	6,844	8,285	12.8
Midland 99	5,407	5,352	10,604	8,751	6,165	8,897	11,460	7,351	7,998	12.7
Hardie	6,696	5,530	9,747	9,606	5,766	9,155	9,443	7,064	7,876	12.2
Russell	4,444	4,229	10,526	9,393	5,840	9,279	10,802	8,048	7,820	12.7
STW 15-11	4,228	4,356	10,575	9,714	6,362	8,674	11,321	6,735	7,746	12.6
Jiggs	5,424	4,623	10,195	8,301	5,615	8,041	8,409	6,683	7,161	12.8
Tifton 44	5,188	4,788	8,773	7,725	6,010	7,498	10,816	5,765	7,070	12.5
Midland	5,495	3,785	8,195	7,749	4,978	5,922	7,876	4,164	6,021	13.5
Quickstand	3,943	1,750	5,930	5,646	3,766	4,536	7,206	2,709	4,436	14.4
	Average									
	5,380	4,811	10,067	8,703	5,778	8,160	10,094	6,590	7,448	12.9
	L.S.D. (.05)									
	1,402	1,516	2,029	1,277	1,199	1,418	1,597	1,585	509 ¹	
	C.V. (%)									
	15.3	18.5	11.8	8.6	12.2	10.2	9.3	14.1	12.0	

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