

## DISCUSSION

Two bermudagrass variety trials (“old” and “new”) were evaluated for forage production in 2001 and are included in the report.

The “old” variety test includes eleven sprigged or vegetatively propagated varieties or experimental strains and was established in May, 1996 (table 1). The test was clipped six times during the 2001-growing season: May 15, June 8, July 11, August 14, September 11, and October 26. Forage yields were moderately good through most of the season. About 70 percent of the average total (5,740 pounds) was harvested by July 11. Good moisture in September and October combined with mild temperatures allowed for good late-season forage production. This year’s production was up 29 percent compared with last year’s and the average yield was the third highest recorded since the planting was established (Table 2). The coefficient of variation for total 2001 yields (10.2 percent) is a good indicator that the data are a reliable comparison of varieties.

The six-year forage yield summary for this test is shown in table 2. This season (table 2), ‘Coastal’ and ‘Russell’ were the most productive for the season. Until this past winter, mild temperatures had prevailed since the initiation of the test and had not seriously cold-tested ‘Tifton 85’, ‘Jiggs’, and ‘Russell’. Over the life of the test, neither ‘Jiggs’ nor ‘Russell’ has been as productive under the mild conditions as ‘Tifton 85’, ‘Coastal’, ‘Midland 99’, and ‘Ozarka’. The droughts of the last three seasons have likely caused some reduction in stand vigor in many of the varieties. Last winter (2000-2001), however, the plants were exposed to cold, wet weather, which probably weakened or killed some of the stand. Some varieties, particularly ‘Tifton 85’ and ‘Jiggs,’ did not have the early spring vigor that we have seen previously, which may be the first indication that they do not have adequate cold hardiness for long-term persistence in southern Oklahoma. However, note that ‘Tifton 85’ recovered nicely in the spring and produced excellent forage yields for the remainder of the season.

The new bermudagrass, ‘Ozarka’ (previously reported as 74X12-6), has been tested by the Noble Foundation since 1990 and at many other locations in Oklahoma, Missouri, Arkansas, and Kansas. It is a dependable, highly productive variety with superior cold tolerance, stand persistence, adaptation, production, and quality when grown in the northern bermudagrass belt. It has consistently rivaled or exceeded the performance of ‘Tifton 44’ and ‘Midland’ and yields similarly to Coastal. Foundation planting stock of ‘Ozarka’ will be available in the spring of 2002 from both the Oklahoma and Missouri Foundation Seed Stocks. Interested growers can contact the Noble Foundation for more information.

In May 2000 we initiated a “new” study at Ardmore to compare growth and persistence of ten seeded varieties and mixtures with that of the three sprigged varieties, ‘Tifton 44’, ‘Midland 99’, and ‘Ozarka’. No forage yields were taken from the trial in 2000. However, the plots were mowed off in late summer and early fall to promote stand establishment. By the end of fall, stands were good to excellent throughout most of the test. The test was clipped for forage yield six times this season: May 25, June 26, July 20, August 23, September 25, and November 6. The grasses in this test were slow to initiate new growth in the spring. There was a larger percentage of weakened and dead plants among the seeded varieties following the cold, wet winter of 2000-2001, and as a result plants did not make a typical spring growth spurt. Stands remained variable throughout the season, resulting in more variable forage yields within and among the seeded types. Total production in dry pounds per acre accumulated for each entry is shown in table 3. Note that the average production of the seeded varieties is less than the sprigged, which is typical. Total forage yield for varieties was statistically significant at the 0.10 level of probability but not at the 0.05 level.

**Table 3.** Dry forage yields from seeded “new” bermudagrass, 2001; established May 30, 2000, Ardmore, Oklahoma

Variety or blend	Clipping Dates						2001 Total	Average Crude Protein(%)
	5/25	6/26	7/20	8/23	9/25	11/6		
Midland 99 <sup>1</sup>	1,221	2,703	1,494	895	2,137	197	8,647	13.0
Ozarka <sup>1</sup>	1,542	2,046	1,252	998	1,909	378	8,125	13.2
Giant	847	1,987	1,431	774	2,423	599	8,061	14.1
Cheyenne	2,134	2,006	1,068	658	1,510	390	7,766	13.3
Tifton 44 <sup>1</sup>	1,387	2,391	1,365	822	1,436	210	7,611	13.3
Mirage/Cd90160 <sup>2</sup>	1,980	1,867	961	588	1,510	349	7,255	14.2
Common	1,705	1,709	941	477	1,138	258	6,228	13.6
Ranchero Frio <sup>2</sup>	1,002	1,470	1,073	614	1,567	449	6,175	13.1
Cd90160	1,367	1,448	844	588	1,450	448	6,145	14.1
Mirage	1,521	1,534	785	479	1,152	317	5,788	14.1
Wrangler	521	1,672	931	627	1,404	204	5,359	13.7
Mohawk	1,187	1,355	587	335	1,062	236	4,762	13.6
Guymon	243	701	740	526	1,354	272	3,836	14.2
Average								
	1,281	1,761	1,036	644	1,542	331	6,595	13.6
L.S.D. <sup>3</sup> (0.05)								
	NS	953	504	183	505	152	NS	
C.V. <sup>4</sup> (%)								
	78.3	37.7	33.9	19.8	22.8	31.9	32.5	

<sup>1</sup>Vegetatively propagated varieties.

<sup>2</sup>Varietal mixtures.

<sup>3</sup>Least significant differences.

<sup>4</sup>Coefficient of variation.

## SOME INFLUENCING FACTORS

Location: Headquarters Farm, Ardmore, Oklahoma.

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.

Seeding rate: Hulled seed at four pounds per acre and un-hulled and/or coated seed at five pounds per acre.

Plot size: Old test – 7 feet x 12 feet;

New test – 8 feet x 20 feet.

Replications: Old test – three; New test – four.

Fertilizer: Starter: Old test – 150 pounds of N per acre on April 18, 2001;

New test – 130 pounds of N and 46 pounds of P<sub>2</sub>O<sub>3</sub> per acre on April 18, 2001.

Topdress: 50 pounds of N per acre following the first, second, and fourth clipping dates of each trial.

Weed control: Both tests – applied 2,4-D plus pendimethlin herbicide on March 8, 2001, 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: See Discussion.

Temperatures: The low temperature was 15° F on December 12, 2000, and January 3, 2001. Temperatures were 20° F or lower on ten dates.

### Temperature Data

Date	Minimum		Date	Minimum	
	Temperature (°F)	Temperature (°F)		Temperature (°F)	Temperature (°F)
December 11	17		December 30	20	
December 12	15		January 1	20	
December 14	19		January 2	16	
December 17	18		January 3	15	
December 22	17		January 20	16	

### Rainfall (Inches)

Month	99-year		
	average	2000	2001
January	1.80	2.24	3.40
February	2.12	1.63	5.93
March	2.87	3.55	0.88
April	3.96	3.04	3.62
May	5.29	0.83	6.96
June	3.93	7.28	3.39
July	2.73	3.11	0.00
August	3.43	0.00	1.93
September	3.64	0.72	10.23
October	3.70	9.46	3.97
TOTAL	33.47	31.86	40.31

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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# 2001 Forage Yields from Bermudagrass Varieties and Strains

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**Table 1.** Dry forage yields from “old” bermudagrass, 2001; established May 14, 1996, Ardmore, Oklahoma

Variety or Strain <sup>1</sup>	Clipping Dates						2001 Total
	5/15	6/8	7/11	8/14	9/11	10/26	
	Pounds/acre						
Coastal	1,086	3,040	2,727	510	1,591	538	9,492
Russell	1,534	2,568	2,914	354	1,334	575	9,279
Tifton 85	406	3,508	2,425	388	1,788	661	9,176
Hardie	1,216	2,324	2,065	161	1,182	2,207	9,155
Ozarka <sup>3</sup>	1,423	2,480	2,204	391	1,702	881	9,081
Midland 99 <sup>2</sup>	1,498	2,649	2,241	375	1,389	745	8,897
STW 15-11 <sup>1</sup>	1,837	2,028	2,184	326	1,126	1,173	8,674
Jiggs	764	2,905	2,023	292	1,220	837	8,041
Tifton 44	1,448	1,973	2,150	305	1,012	610	7,498
Midland	507	1,698	1,568	371	1,079	699	5,922
Quickstand	289	1,856	1,596	112	369	314	4,536
	Average						
	1,092	2,457	2,191	326	1,254	840	8,160
	L.S.D. <sup>4</sup> (0.05)						
	570	678	493	108	208	262	1,418
	C.V. <sup>5</sup> (%)						
	30.6	16.2	13.2	19.5	9.8	18.3	10.2

<sup>1</sup>STW 15-11 is an experimental strain from Oklahoma State University.

<sup>2</sup>Midland 99' was designated as experimental strain 74X21-6 in 1996, 1997, and 1998.

<sup>3</sup>Ozarka' was designated as experimental strain 74X12-6 in the years 1996 – 2000.

<sup>4</sup>Least significant difference.

<sup>5</sup>Coefficient of variation.

**Table 2.** Six-year dry forage yields from “old” bermudagrass (1996-2001); established May 14, 1996, Ardmore, Oklahoma

Variety or Strain	1996	1997	1998	1999	2000	2001	Six-year	Six-year	Average Crude Protein (%)
							Total (1996-2001)	Average (1996-2001)	
	Pounds/acre								
Tifton 85	6,796	7,020	12,975	9,620	6,718	9,176	52,305	8,718	13.0
Coastal	5,134	6,300	12,077	9,481	5,850	9,492	48,334	8,056	13.4
Ozarka	6,424	5,189	11,153	9,756	6,486	9,081	48,089	8,015	12.8
Hardie	6,696	5,530	9,747	9,606	5,766	9,155	46,500	7,750	12.0
Midland 99	5,407	5,352	10,604	8,751	6,165	8,897	45,176	7,529	12.9
STW 15-11	4,228	4,356	10,575	9,714	6,362	8,674	43,909	7,318	12.8
Russell	4,444	4,229	10,526	9,393	5,840	9,279	43,711	7,285	12.8
Jiggs	5,424	4,623	10,195	8,301	5,615	8,041	42,199	7,033	13.0
Tifton 44	5,188	4,788	8,773	7,725	6,010	7,498	39,982	6,664	12.8
Midland	5,495	3,785	8,195	7,749	4,978	5,922	36,124	6,021	13.4
Quickstand	3,943	1,750	5,930	5,646	3,766	4,536	25,571	4,262	14.1
	Average								
	5,380	4,811	10,067	8,703	5,778	8,160	42,539	7,090	13.0
	L.S.D. (0.05)								
	1,402	1,516	2,029	1,277	1,199	1,418		847	
	C.V. (%)								
	15.3	18.5	11.8	8.6	12.2	10.2		12.3	