

**Forage Research
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Small Grain and Ryegrass Forage Variety Tests, 1983-84

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Summary

Small grain winter annuals are often grazed out in Texas to overwinter cattle. Information on which varieties of oats, wheat, rye, and ryegrass procedure the highest forage yields is valuable for cattlemen. To simulate grazing, tests were clipped several times to compare varieties for forage yield at various times during the growing season and for total yield. Separate tests were conducted for oats, rye, ryegrass, and wheat. It is important to consider forage distribution throughout the growing season and not only total forage yield. Early fall and winter forage production may be of more value to a forage program than forage produced in April or May.

Introduction

These trials were conducted to determine which varieties produce optimal forage yields in East Texas. A second objective was to compare experimental and newly released lines with recommended varieties to determine their adaptation to East Texas growing conditions.

Procedure

Rye, wheat, ryegrass, and oats were planted in separate tests on September 12, 1983 at Overton, Texas. The ryegrass variety test was planted on October 11 at a different location. Seed was replanted into six-row plots spaced 8 inches apart, 10 feet in length. The four center rows were harvested at a height of about 2 inches with a flail-type harvester. Fertilizer application consisted of a preplant application at a rate of 24-96-96 (N-P₂O₅-K₂O) lb/A and a split nitrogen application of 100 lb on September 26, 1983 and 60 lb on February 26, 1984 for a total N application of 184 lb/A. Individual small grain forage tests were harvested when there was sufficient forage to cut. Normally, this would be when the forage was from 8 to 10 inches tall. No serious disease or insect pests were observed in these tests.

Limited moisture in September reduced ryegrass stands. Wheat, oat, and rye emergence was good and stands persisted. Rainfall amounts in inches by months were: September - 1.2; October - 2.8; November - 3.8; December - 4.3; January - 1.8; February - 7.2; March - 2.9; April - 1.6; and May - 2.7. A temperature of 4°F was recorded on December 26 and 10°F was recorded on January 23. During this cold period, the soil froze to a depth of about 10 inches which was very unusual.

Results and Discussion

Forage yield data are presented in Tables 1-4. Highest

KEYWORDS: Wheat/oats/rye/ryegrass/winter annuals.

mean yields in 1983-84 were produced by ryegrass followed by wheat, rye, and oats. All oat varieties were

TABLE 1. RYEGRASS FORAGE VARIETY TEST (A) PLANTED EARLY (SEPTEMBER 12) AT OVERTON, TEXAS 1983-84

Variety	Harvest Dates				Total Yield
	Nov. 17	Dec. 13	Mar. 16	Apr. 27	
	Pounds Dry Matter/Acre				
Marshall	2,374	945	434	2,093	5,847
Florida 80	2,093	868	485	2,221	5,668
Gulf	2,349	1,124	435	1,685	5,592
TX-R-80-4	1,405	1,021	562	2,196	5,184
Exp. Tetrablend 444	1,659	1,021	562	1,915	5,158
Shannon	1,889	945	485	1,736	5,055
TNT	1,940	1,072	434	1,481	4,928
Montgomery Exp.	1,225	843	664	2,195	4,927
TX-R-80-T Exp.	1,251	946	511	2,068	4,826
TERLI	1,634	1,098	588	1,328	4,647
Victoria (perennial)	638	639	357	2,579	4,212
Common	817	766	511	1,966	4,060
Mean	1,606	945	502	1,955	5,009
LSD (10% level)	660	217	NS ¹	589	771
CV	34	19	29	25	13

RYEGRASS FORAGE VARIETY TEST (B) PLANTED LATE (OCTOBER 11) AT OVERTON, TEXAS

Variety	Harvest Dates			Yield
	Dec. 12	Mar. 16	Apr. 17	
	Pounds Dry Matter/Acre			
Tetrablend 444	1,608	792	1,608	4,099
Marshall	1,404	919	1,583	3,096
TNT	1,506	919	1,430	3,855
TX-R-80-T	1,225	919	1,710	3,855
Gulf	1,558	816	1,430	3,803
Shannon	1,609	741	1,430	3,779
Gulf	1,601	766	1,353	3,728
TX-R-80-4	1,302	1,047	1,353	3,702
Montgomery Exp.	1,353	766	1,353	3,651
Florida 80	1,405	1,098	1,075	3,577
Common	1,430	868	1,252	3,550
TERLI	1,149	715	1,251	3,115
Mean	1,430	864	1,417	3,711
LSD (10% level)	261	NS ¹	289	NS ¹
CV	15	44	1.7	13

Seeding rate = 48 lb/A.

Fertilizer application: Preplant 400 lb/A of 6-24-24 (N, P₂O₅, K₂O). Topdressed (urea) 100 lb N/A on September 26 and 60 lb N/A on February 26, 1984. Total N = 184 lb/A.

¹NS = no significant differences in yield between varieties this harvest date.

Severe winter-kill occurred on most varieties during December. This resulted in uneven winter-kill within varieties and between varieties and increased the variability of the study.

The stands on the early planting date (September 12) were somewhat erratic due to dry conditions and the test was replanted, however, the data are presented for both tests.

TABLE 2. WHEAT VARIETY FORAGE TEST AT OVERTON, TEXAS 1983-84

Variety	Harvest Dates					Total Yield
	Nov. 10	Dec. 9	Feb. 23	Mar. 16	Apr. 9	
	Pounds of Dry Matter/Acre					
Florida 302	1,277	1,047	536	2,145	332	5,337
Grazerblend II (Triticale)	1,098	894	588	1,864	613	5,055
McNair 1003	1,251	945	919	1,225	204	4,545
HW-3022 (Rohm & Haas)	1,634	894	639	817	358	4,340
TAM106	1,124	817	818	1,200	255	4,214
Northrup King 812	1,251	919	817	996	128	4,110
HW-3006 (Rohm & Haas)	1,532	919	613	766	255	4,084
Rosen	1,123	894	919	970	179	4,084
Coker 916	919	868	817	1,200	230	4,034
Coker 68-15	1,328	945	562	919	281	4,034
Southern Belle	843	843	843	1,250	230	4,008
Bradford	1,124	894	613	919	358	3,907
Coker 762	868	843	894	1,098	204	3,906
TX-73-009	996	843	766	817	179	3,803
Terral-81-17	1,328	817	639	817	153	3,753
Texred	1,021	817	690	1,123	162	3,753
Delta Queen	996	868	868	664	255	3,651
TX-75-213	1,098	894	664	741	255	3,651
Mit	919	868	664	843	204	3,498
Florida 301 ¹	1,251	843	0 ¹	0	128	2,221
Mean	1,149	883	693	1,029	245	3,999
LSD (10% level)	314	125	138	762	104	783
CV	23	12	16	62	35	16

Planted on September 12, 1983. Seeding rate = 120 lb/A.

Fertilizer application: Preplant 400 lb/A of 6024024 (N, P₂O₅ and K₂O).

Topdressed (urea) 100 lb N/A on September 26 and 60 lb N/A on February 26, 1984. Total N = 184 lb/A.

¹Florida 301 was severely winter-killed in December.

TABLE 3. RYE FORAGE VARIETY TEST AT OVERTON, TEXAS 1983-84

Variety	Harvest Dates					Total Yield
	Nov. 10	Dec. 8	Feb. 21	Mar. 19	Apr. 9	
Wintergrazer 70	1,405	817	1,098	1,149	178	4,647
Noble Foundation-142	1,251	893	970	1,047	281	4,443
Grazerblend II	1,302	791	485	1,200	636	4,415
Noble Foundation-214	1,277	868	1,047	1,072	127	4,391
Bonel	1,174	842	996	1,021	154	4,188
Noble Foundation-91	1,174	766	996	1,098	129	4,163
GI-85	1,200	893	1,021	715	127	3,957
Curley Grazer 2000	1,353	817	970	511	178	3,830
Maton	817	817	1,072	944	76	3,727
Vitagrazer	1,072	842	1,430	281	25	3,651
FBISRR Florida Exp.	1,455	562	178	306	154	2,656
Elbon	102	76	128	0	51	358
Mean	1,132	749	866	779	177	3,702
LSD (10% level)	286	152	253	219	150	654
CV	21	17	24	23	70	14

Planted on September 12, 1983. Seeding rate = 120 lb/A.

Fertilizer application: Preplant 400 lb/A of 6-24-24 (N, P₂O₅ and K₂O).

Topdressed (urea) 100 lb N/A on September 26 and 60 lb/A on February 22. Total N = 184 lb/A.

killed by winter freeze damage in December and were not harvested thereafter. Ryegrass was severely damaged, however all varieties did recover and forage was harvested in March. The September 12 planting of ryegrass was superior to the October planting even though the late planting had better stands. This was due to the fall growth and November 17 harvest. The cold

weather in December and January greatly reduced winter forage production of ryegrass and favored varieties with good winterhardiness (such as Marshall).

Forage production of wheat varieties was fairly stable through the season even in December. Some interaction in seasonal forage production and varieties can be observed (Table 2). Grazerblend II triticale produced high

TABLE 4. OAT FORAGE VARIETY TEST AT OVERTON, TEXAS 1983-84

Variety	Harvest Dates		Total Yield
	Nov. 11	Dec. 12	
	Pounds Dry Matter/Acre		
Coker 234	2,017	945	2,962
Four-twenty-two	2,067	894	2,961
TX 81C707 ¹	2,017	919	2,936
Mesquite	1,915	945	2,860
TX 82c ¹	1,966	868	2,834
Big Mac	1,915	894	2,809
TX 82663171	1,976	792	2,767
Walken	1,787	970	2,757
Harpool 833	1,889	843	2,732
TX 81C705 ¹	1,864	868	2,732
Coker 227	1,736	919	2,655
Fal-501	1,812	792	2,604
Fla-502	1,588	1,021	2,579
Bob	1,506	817	2,324
Mean	1,859	892	2,751
LSD (10% level)	299	147	336
CV	13	14	10

Planted on September 12, 1983. Seeding rate = 120 lb/A.

Fertilizer application: Preplant 400 lb/A of 6-24-24 (N, P₂O₅ and K₂O). Topdressed (urea) 100 lb N/A on September 26 and 60 lb N/A on February 26, 1984. Total N = 184 lb/A.

*All varieties winter-killed in late December due to extreme cold.

¹Experimental variety, seed is not available.

yields compared to most wheat varieties. Rye forage production was somewhat lower than normally expected. Seed germination of the variety Elbon was very bad and resulted in its low forage production.

The oat yields were very high for the November harvest date, however the winterfreeze damage killed all varieties in late December 1984.

When making comparisons between varieties within a table, difference between varieties of less than the LSD are probably due to chance only and should not be considered as important. Furthermore, data from 1 year may be misleading because of unusual weather conditions. Therefore, these data should only be used to give an indication of varietal differences. Recommendations should be made using at least 3 years of data.