

FORAGE AND LIVESTOCK RESEARCH - 1984

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by

M. A. Arnold.....County Extension Agent, Nacogdoches County
G. M. Aubrey.....County Extension Agent, Upshur County
Cathy A. Bateman.....Technical Assistant II, Plant Breeding
J. V. Davis.....Research Associate, Soil Chemistry
Jolene Davis.....Technician II, Reproductive Physiology
W. C. Ellis.....Professor, Animal Nutrition, College Station
M. J. Florence.....Research Associate, Forage Physiology
C. L. Gilbert.....Technician II, Clover Breeding
V. A. Haby.....Associate Professor, Soil Chemistry
Beverly B. Krejsa.....Technician I, Soil Chemistry
L. R. Nelson.....Associate Professor, Plant Breeding
D. A. Neuendorff.....Technician II, Reproductive Physiology
R. D. Randel.....Professor, Reproductive Physiology
L. D. Roth.....Graduate Student, Animal Nutrition, College
Station
F. M. Rouquette, Jr.....Professor, Forage Physiology
G. R. Smith.....Assistant Professor, Clover Breeding
E. M. Sudweeks.....Extension Dairy Specialist
M. Tomaszewski.....Dairy Specialist, College Station
S. L. Ward.....Research Assistant, Plant Breeding
R. W. Weaver.....Professor, Soil & Crop Sciences, College Station

Texas A&M University Agricultural Research
and Extension Center at Overton

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VARIETY TESTS FOR WINTER ANNUAL FORAGE PRODUCTION
1982-83

L. R. Nelson, S. L. Ward and Cathy Bateman

SUMMARY

It is important for producers to know which small grain varieties have the potential to produce high forage yields. This information is very valuable for cattlemen who will either graze out the small grain or pull cattle off and harvest grain. Therefore, in an attempt 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.

OBJECTIVE

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 and oats were planted into separate tests on September 9. The wheat and ryegrass variety tests were planted on September 10. Seed was planted into six-row plots spaced 8 inches apart, 10 ft 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 60-60-60 ($N-P_2O_5-K_2O$) lbs/a and a split N application of 80 lbs on October 25, 1982 and 70 lbs on February 18, 1983 for a total N application of 210 lbs/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.

Moisture was limiting during most of the fall and winter. This required one irrigation on September 27 of 2 inches to avoid losing stands of all small grain forage tests. Good stands resulted on the rye and oat tests; however, erratic stands in ryegrass and wheat plots resulted and reduced yields of some varieties (as noted on tables). Precipitation amounts in inches by months were: September - 0.7; October - 6.6; November - 6.2; December - 6.3; January - 0.9; February - 8.3; March - 5.0; April - 2.4; May - 7.2. Winter freeze damage was of little or no importance with the coldest temperature of 19°F being recorded on December 13 and December 19, 1982.

RESULTS

Forage yield data are presented in Tables 1 through 4. Highest overall forage yields in 1982-83 were produced by rye and oats, followed by wheat and ryegrass. Overall, the warmer than average temperatures did not result in higher forage yields. None of the winter annuals got off to a good start and fall forage yields were quite low.

Rye forage yields (Table 1) were spread throughout the season with the highest yields being harvested in March. Unusually late production of rye forage resulted in a May harvest. Differences between varieties were significant in the yield data for the last four harvests, however, total yields were not significantly different at the $P < .05$ level. This indicates that for the entire season, total yields were similar, however, forage production by some varieties differed between periods.

In addition to the wheat varieties (Table 2) Grazer II triticale was included in this test and produced the highest forage yield (compared to the wheat varieties). The first harvest was late (December 7) indicating little forage production during the fall even though it was planted early (September 10). Stands were not consistent and was probably the major cause of reduced yields throughout the growing season.

Oat yields were higher than wheat yields (Table 3). Big Mac produced the highest forage yield. Total forage yields ranged from 3,900 to 4,600 lbs/a. There were no significant differences between

yields until the third harvest.

Ryegrass yields were reduced because of poor stands and varieties were probably affected differently by stands (Table 4). Some other experimental forages were included in this study as indicated in Table 4.

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 one 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 data.

Table 1. Rye forage variety test at Overton, TX, 1982-83

Variety	Harvest Date					Total Yield
	Nov. 12	Jan. 28	Mar. 7	Apr. 5	May 3	
	-----Pounds of dry matter per acre-----					
Vitagraser	1047	1532	1685	639	792	5695
Maton	970	1124	1532	1149	715	5490
Bonel	817	1047	1864	1072	664	5464
Elbon (Check)	1021	1200	1583	843	690	5337
Noble Foundation - 91	817	996	1405	1175	792	5185
Noble Foundation - 214	868	996	1685	1072	562	5183
Noble Foundation - 142	894	1021	1532	1123	562	5132
Curley Grazer	868	1276	1685	715	588	5132
Wintergrazer - 70 ¹	868	485	1022	1098	1251	4724
Mean	908	1075	1555	987	735	5260
LSD (10% level) ²	NS	256	354	226	209	NS
CV	18	19	19	19	23	9

Planted on September 9, 1982. Seeding rate = 120 lbs/acre.

Fertilizer application: preplant 500 lbs of 12-12-12 per acre, topdress N 80 lbs/ac on October 25 and 70 lbs N on February 18, 1983.

¹Wintergrazer 70 had low germination in this study and yields were reduced.

²Yield differences compared to the check greater than the LSD indicate that in 9 out of 10 times this difference is real and not experimental error.

Table 2. Wheat variety forage test at Overton, TX, 1982-83

Variety	Harvest Date				Total Yield	% Stand ²
	Dec. 7	Mar. 8	Apr. 8	May 4		
	Pounds of dry matter per acre-----					
Grazer II (Triticale)	792	1251	817	996	3856	25
Coke-762 ¹	409	1660	537	715	3321	80
Tx-75-213 ¹	587	1149	588	715	3039	90
Southern Belle	638	971	868	511	2988	80
Delta Queen	281	1175	511	919	2886	45
Mit	587	1124	511	613	2835	45
Coker 68-15 (Check)	588	741	996	485	2810	60
Bradford	409	741	1047	460	2657	80
Northrup King pro 812	536	741	715	639	2631	35
TAM-106	460	485	1123	435	2503	70
Coker-916	408	460	919	715	2502	30
Tx-71C-8130-R ¹	536	792	639	486	2453	45
Tx-71A-1039-X6 ¹	357	639	894	562	2452	35
Tx-71D-4876-X5 ¹	332	817	537	664	2350	40
McNair 10-03	358	766	460	715	2299	45
Tx-73-009 ¹	383	409	945	537	2274	60
Mean	479	870	756	635	2741	
LSD (10% level) ³	NS	397	155	150	539	
CV	45	38	17	20	16	

Planted September 10, 1982. Seeding rate = 120 lbs/acre.

Fertilizer application: preplant 500 lbs of 12-12-12 per acre, topdress N was 80 lbs/ac on October 25 and 70 lbs/ac on February 18, 1983.

¹ Experimental lines, seed is not available.

² Stands were reduced by dry soil conditions during germination and probably reduced yield of some varieties. Percent stand is the mean of four replications.

³ Yield differences compared to the check greater than the LSD indicate that in 9 out of 10 times this difference is real and not experimental error.

Table 3. Oat variety forage test at Overton, TX, 1982-83

Variety	Harvest Dates				Total Yield
	Dec. 12	Mar. 7	Apr. 8	May 3	
	-----Pounds dry matter per acre-----				
Big Mac	715	1251	1813	868	4647
Coker 422	715	1940	1200	792	4647
Mesquite	715	1558	1481	792	4546
Walken	613	1430	1456	1021	4520
Coker 227	766	1175	1634	843	4418
Coker 80-20	664	1583	1277	894	4418
Coker 234 (Check)	690	1379	1430	817	4316
TAM-0-312	766	1379	1303	741	4189
Bob	664	1430	1277	792	4163
New Nortex	588	1200	1507	639	3934
Mean	690	1432	1438	820	4380
LSD (10% level) ¹	NS	NS	196	107	423
CV	19	26	11	11	8

Planted on September 9, 1982. Seeding rate = 120 lbs/acre.
 Fertilizer application: preplant 500 lbs of 12-12-12 per acre, topdress N was 80 lbs/ac
 on October 25 and 70 lbs/ac on February 18, 1983.

¹Yield differences compared to the check greater than the LSD indicate that in 9 out of 10 times this difference is real and not experimental error.

Table 4. Ryegrass variety and resquegrass selection forage test at Overton, TX, 1982-83

Varieties	Harvest Dates				Total Yield	% Stand ²
	Dec. 21	Mar. 8	Apr. 11	May 4		
	-----Pounds of dry matter per acre-----					
Achicoria-Cichorium (Hoja ancha) ³	638	766	792	1123	3319	30 ²
Achicoria-Cichorium (Hoja fina)	766	715	587	1149	3217	10
Tx-R-80-T ¹	587	996	588	741	2912	65
Gulf (Check)	562	1047	664	588	2861	75
Georgia Reseeding ¹	383	1124	639	562	2708	50
ISI-80-1 ¹ resquegrass	511	715	639	817	2682	20
Tx-R-80-4 ¹	511	894	613	588	2606	50
Urbana ¹	690	766	511	613	2580	50
Tx-R-81-T ¹	460	792	690	587	2529	50
Florida 80	485	868	562	588	2503	60
Tx-R-81-1 ¹	383	868	664	537	2452	50
Common	357	690	639	715	2401	15
ISI-79-1 resquegrass	358	562	664	766	2350	10
Marshall	383	588	511	868	2350	55
ISI-80-4 resquegrass	409	536	588	741	2274	10
Shannon	536	613	537	460	2146	75
ISI-78-1 resquegrass	306	537	511	792	2146	5
Ninak	460	562	511	588	2121	55
Wilo-Tetraploid - Italian	204	383	588	664	1839	20
Dalita-Tetraploid - Italian	153	409	537	664	1763	20
Mean	462	728	596	700	2487	
LSD (10% level) ⁴	195	188	144	164	413	
CV	36	21	20	19	14	

Planted September 10, 1982. Seeding rate = 35 lbs/acre for ryegrass and resquegrass.

Fertilizer application: preplant, 500 lbs of 12-12-12 per acre, topdress N was 80 lbs/ac on October 25 and 70 lbs/ac on February 18, 1983.

¹ Experimental varieties, seed is not available.

² Stands were not acceptable and yields were reduced due to dry weather during germination.

³ Experimental broadleaf forage from Argentina.

⁴ Yield differences compared to the check greater than the LSD indicate that in 9 out of 10 times this difference is real and not experimental error.