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Forage Variety Tests for Oat, Rye, and Wheat at Overton in 1992-93

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Summary

This report presents forage data from the 1992-93 winter growing season for oats, rye, and wheat at Overton, Texas. Forage yields were above normal because of good growing conditions and little or no winterkill. Oats produced higher total seasonal forage yields than did wheat or rye. The mean yields across all varieties of oats, rye, and wheat were 6,802, 4,981, and 3,711 lb dry matter/acre, respectively.

Introduction

These experiments were conducted to determine the forage yield potential of small-grain varieties as well as several experimental lines under east Texas growing conditions. Seasonal forage distribution, disease resistance, and winterhardiness were also determined. The primary use of small grains in east Texas is for grazing; however, grain production can be profitable on some farms.

Procedure

Available commercial varieties and experimental lines of wheat, oats, and rye were planted on a Sacul fine sandy loam soil in three separate experiments at Overton, Texas, on 14 Sept. 1992. There were 25 wheat, 13 rye (2 triticale), and 20 oat entries in their respective experiments. All tests were planted into a prepared seedbed, which had been fertilized with 25 lb of nitrogen (N), 100 lb of phosphorus (P), and 100 lb of potassium (K)/acre. Seeding rates of all three small grains were 120 lb/acre. Seed was drilled into seven row plots, 12 ft in length with 7-in. row spacing. Experimental design was a complete randomized block with four replications. Wheat and rye were top-dressed with 48 lb N, 18 lb P, and 36 lb K/acre on 8 December. The topdressing with P and K was conducted to try to improve forage yields on a sandy soil. The experiments were top-dressed with ammonium nitrate at 61 lb N/acre on 9 Mar. 1993. Forage was harvested with a Hege sickle bar forage harvester at a 2-in. stubble height. Dry matter (oven-dried forage)

percentage was determined from a subsample dried at 150 °F for 48 hr. A 10% least significant difference was computed for each harvest. This value can be used to make comparisons between varieties. Differences greater than this value are real 9 out of 10 times and may be considered significant.

Results and Discussion

Soil moisture was adequate to obtain good stands in each of the three experiments. Soil moisture remained good throughout the growing season. Rainfall amounts in inches by months were September, 2.6; October, 4.3; November, 6.0; December, 6.7; January, 5.7; February, 4.9; March, 4.3; April, 4.3; and May, 1.8. The lowest temperature recorded during the growing season was 26 °F on 26 Jan. 1993. No significant winter-freeze damage was detected and no winterkill occurred.

Wheat forage yields are presented in Table 1. The first harvest was on 23 November, when the forage was about 10 in. tall. The higher yielding entries were experimental lines AR 26413B, TX83-50, and TX85-264. The highest yielding variety was 'Buckshot DS2368', which produced 812 lb/acre. The second harvest was on 26 January, when good yields were produced by most entries. The highest yields were again produced by experimental lines TX85-264 and TX84-26-2-2, and 'Buckshot DS2368' produced a yield of 1,460 lb/acre. In the third harvest on 24 February, yields were much less than in the second harvest. Few differences were noted between entries. In the fourth harvest on 29 March, the better yielding entries were Noble Foundation (NF) 222, 'Pioneer 2548', TX85-119, and TX84-146-2. In the last harvest, on 22 April, all entries produced similar forage yields. For the total season forage yield, the highest yielding variety was 'FLA 302', and Buckshot DS2368 and '2180' produced similar yields.

Rye and triticale forage yields (Table 2) were much higher than wheat yields. The additional forage yield was produced in the first harvest (fall production) and also in the April harvest. In the 8 November harvest, the higher producing entries were experimental FLA 8727-LI, 'FLA 401', rye, and 'FLA 201' triticale. There were few differences between entries

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Table 1. Wheat forage variety test, Overton, Texas, 1992-93.

Variety	11-23	1-26	2-24	3-29	4-22	Yield total
..... Dry matter (lb/acre)						
TX83-50†	985	1286	653	894	747	4565
AR 26413B†	1140	1771	411	408	761	4491
TX82-11†	842	1112	636	928	843	4361
TX86-78-2†	840	1483	466	539	982	4310
TX84-146-2†	728	1271	559	1106	584	4248
NF 222†	847	766	500	1297	802	4212
TX86-106H†	713	1229	534	708	981	4165
TX85-264†	966	1525	499	255	853	4098
FLA. 302	660	1340	470	702	851	4023
SWM 14240†	603	1097	333	943	978	3954
TX84-26-2-2†	698	1444	541	482	749	3914
TX84-174-2†	607	1321	442	568	841	3779
Buckshot DS2368	812	1460	471	255	773	3771
2180	684	1056	440	770	726	3676
TX85-161-1†	741	1088	469	579	748	3625
TX82-50-1†	896	948	340	592	782	3558
TX86-50†	585	948	435	856	715	3539
TX85-119†	450	711	410	1210	669	3451
TX84-132-2†	255	931	488	923	795	3392
PIO. 2548	160	614	426	1288	728	3216
NF 126†	600	550	366	949	746	3211
TX84-26-2-6†	388	886	483	615	813	3185
TX84-168-2†	407	1048	439	486	803	3183
TX86D1332†	135	304	341	1004	795	2579
TAM 109	109	224	463	842	636	2274
Mean	634	1057	465	768	788	3711
LSD (0.10)	393	304	189	304	245	767

Planted 14 Sept. 1992.

Fertilization: Preplant 25 lb N, 100 lb P, and 100 lb K/acre. Top-dressed with 48 lb N, 18 lb P, and 36 lb of K/acre on 8 Dec. 1992. Top-dressed again on 9 Mar. 1993 with 61 lb of N/acre.

Herbicide: Glean was applied postemergence at the two-leaf stage at a rate of 0.3 oz/acre.

† Experimental lines, seed not available.

in the second and third harvests. In the 29 March harvest, 'Maton' and 'Bonel' produced the higher yields. In the last harvest on 24 April, two Florida entries, FLA 201 triticale and FLA 8727-LI rye, produced the higher yields; however, several other entries were not significantly different in forage yield.

For the total season yield, the three Florida lines produced the highest yields. If colder weather had occurred, which may have resulted in some winterkill or freeze damage, these lines probably would have experienced some freeze damage.

The oats produced higher yields (Table 3) than did the rye or wheat. We would expect oats to do well in warm winters, when no freeze damage occurs. The first harvest was on 23 November. Highest forage yields were produced by 'Magnum II', 'FLA. 501', and 'Bob'. Distribution of forage yield among all harvests in 1992-93 was very good. The second harvest was on 26 January, where the top yielding entry was FLA 501, 'FLA 502', and NF 188. In the 18 March harvest, the better yielding entries were experimental TAM-O-386EB, followed by several other entries. In the 13 April harvest, experimental NF 170 was followed by 'Buckshot H.G. 76-30' and TX89D7073. In the last clipping on 18 May, experimentals TX87B3086, Magnum II, and TX89D7213 all produced yields in excess

of 2,000 lb/acre. In total season forage yield, the two NF entries produced the highest yields, followed by several other experimentals and FLA 501. The oat forage yields reported in the 1992-93 test are above average for Overton. The warm temperatures, favorable distribution of rainfall, and lack of winterkill resulted in good growing conditions for high oat forage production.

Results of these studies should be used with caution. Data from more than 1 year is desirable when variety recommendations are made because of interactions with weather conditions. Because the growing season of 1992-93 was unusually warm with no winter-freeze damage, this is especially true.

Table 2. Rye and triticale forage test, Overton, Texas, 1992-93.

Variety	11-8	1-6	2-24	3-29	4-24	Yield total
..... Dry matter (lb/acre)						
FLA. 8727-LI†	3006	433	875	283	2151	6748
FLA. 401	2305	634	312	723	1761	5735
FLA. 201 Trit.	2270	754	225	221	2185	5655
NF 73†	1424	896	808	1046	1194	5368
Bonel	929	599	633	1600	1381	5142
FLA. 402	1266	946	966	369	1567	5114
Maton	810	698	530	1631	1394	5063
NF 125†	942	775	598	914	1567	4796
Sunland Trit.	1454	932	341	164	1901	4792
NF 14†	1014	667	652	1123	1152	4608
Elbon	1289	722	580	1088	928	4607
Wintergrazer 70	891	740	760	825	1314	4530
WS92†	187	294	180	151	1780	2592
Mean	1368	699	574	780	1559	4981
LSD	588	314	336	388	500	1117

Planted 14 Sept. 1992.

Fertilization: Preplant 25 lb N, 100 lb P, and 100 lb K/acre. Top-dressed with 48 lb N, 18 lb P, and 36 lb of K₂O/acre on 8 Dec. 1992. Top-dressed again on 9 Mar. 1993 with 61 lb of N/acre.

Herbicide: Glean was applied postemergence at the two-leaf stage at a rate of 0.3 oz/acre.

† Experimental line, seed not available.

Table 3. Oat forage variety test, Overton, Texas, 1992-93

Variety	Harvest date					Total yield
	11-23	1-26	3-18	4-13	5-18	
 Dry matter (lb/acre)					
NF 188†	1467	1805	1600	2020	1487	8379
NF 170†	1392	1217	1435	2650	1624	8318
TAM-O-386EB†	1082	1577	1993	1440	1452	7544
FLA. 501	1665	1956	1208	1299	1414	7542
TX89D7213†	452	1173	1650	1930	2161	7366
Buckshot H.G. 76-30	626	1242	1571	2368	1437	7242
TAM-O-386R†	1049	1404	1397	1599	1744	7193
FLA. 502	594	1813	1643	1205	1868	7123
TX83AB2923†	965	1135	1296	1841	1836	7073
TX89D7198†	1235	1376	1316	1610	1517	7054
Bob	1404	1616	1308	1082	1515	6925
TX89D7002†	682	1141	1589	1683	1701	6796
TX90D2457†	904	1149	1657	1510	1530	6750
TX89B1980†	1297	1565	947	1000	1634	6443
TX88Ab1491†	713	1700	1511	1160	1255	6339
Magnum II	2327	433	367	908	2161	6196
TX87B9453†	284	1188	1355	1248	1525	5598
TX89D7073†	44	257	1489	2114	1680	5582
Ozark	144	473	1148	1807	1734	5306
TX87B3086†	110	1033	1076	639	2406	5264
Mean	922	1263	1378	1556	1684	6802
LSD (0.10)	445	277	224	471	661	993

Planted 14 Sept. 1992.

Fertilization: Preplant 25 lb N, 100 lb P_2O_5 , and 100 lb of K_2O /acre. Top-dressed with 48 lb N, 18 lb P_2O_5 , and 36 lb of K_2O /acre on 8 Dec. 1992. Top-dressed again on 9 Mar. 1993 with 61 lb of N/acre.

Herbicide: Glean was applied postemergence at the two-leaf stage at a rate of 0.3 oz/acre.

† Experimental line, seed not available.