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Small Grain Forage Yields at Overton for 2000-2001 and Three-year Means

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Summary

This report provides forage yields for wheat, rye, and oat experiments for 2000-2001 and gives a 3-year mean yield for some commercial varieties. When comparing varieties, a 3-year mean should be much more useful, because one year's data may be affected by environmental conditions. Winterkill data for the oat experiment are presented.

Introduction

Small grains are often utilized for grazing by cattlemen during the cool season in Texas. The small grains which are usually used for grazing are wheat, rye, and oats. Each of these crops may have some advantage over another small grain and fit into a grazing operation. For example, rye has good seedling vigor and is very winter hardy. Oats have less winter freeze resistance, but have very high forage yield potential in the spring. Wheat is often utilized as a dual purpose (forage and grain) crop wherever wheat is grown for grain. These crops may also have some negative traits. For example, rye matures in April and has little late spring forage production. Oats are fairly susceptible to freeze damage and may be susceptible to crown rust. Wheat generally has lower total season forage yields compared to the other two crops. There are significant differences between varieties and over years. Some varieties produce more forage in the fall while others produce higher yields in the winter or spring.

Procedure

Wheat, rye, and oat forage variety tests are conducted annually at the TAMU Agricultural Research and Extension Center at Overton. Commercial varieties and experimental lines were evaluated during the past 3 years. Fertilizer application rates and dates for the 2000-2001 study are noted in the Tables 1, 2, and 3. Planting dates were early September normally; however, in 2000 the planting date was 4 October. Seed were drilled into a prepared seedbed at a one-inch depth at 110 lb/ac. Plot size was 4 x 12 ft with four replications. The plots were harvested with a Hege plot harvester at a cutting height of 2 inches on the dates noted on each table for a specific small grain. Forage was harvested whenever forage was about 8 inches in height.

Results and Discussion

Environmental conditions greatly affect forage production of all small grain crops. Rainfall in inches by months was Sept., 0.8; Oct., 2.6; Nov., 11.7; Dec., 5.0; Feb., 5.8; Mar., 6.7; Apr., 0.4; and May, 8.7. In the wheat experiment (Table 1), fall and winter production was greatly affected by environmental conditions. Moisture was limited in September and October which delayed fall growth. A very wet November accompanied by cool and cloudy conditions also reduced production. The first harvest was on 20 February, where even then, low yields were produced. Higher yielding

commercial varieties were Coker 9803, Coker 9663, Coker 9134, and Pioneer 2566, closely followed by other entries. On the 9 March harvest, forage yields were still low. Higher yielding entries were Experimental AR 494 B-2-2, followed by Coker 9663, and Pioneer 2566. On the 30 March harvest, yields remained low; however, this harvest was only 21 days after the second harvest. Not many significant differences are noted between entries. On the fourth and last harvest on 1 May, above average yields were produced. Again not much significant differences as judged by the LSD are apparent. This is also true for total season dry matter yields. No winterkill was observed in this study. Of those commercial varieties tested for the past three-years, Coker 9663 and Pioneer 2566 produced the higher forage yields.

In the rye experiment (Table 2), as with wheat, forage production was not present in the fall or early winter. The first harvest on 2 February resulted in fairly low yields, however, some forage was present. The second harvest on 21 February resulted in higher, but not good yields. Entries producing over 700 pounds of dry matter were Wren 96 and NF 65; however, they were closely followed by other lines. In the third harvest on 9 March, the rye had demonstrated good growth and most entries produced over 700 lb/ac. The 4th harvest on 30 March also had good yields with experimental XR9909 producing over twice as much forage as other entries. The major portion of the forage was harvested on the last harvest on 2 May. This harvest was primarily stems and therefore quality would have been low. Higher yields were produced by Maton, XR9903, and XR9909. For the total season dry matter yields, XR9909 and Maton produced the two highest yields. For the four commercial varieties in this experiment tested over 3 years, there were not many differences; however, Oklon and Bates were slightly higher than Elbon and Maton in forage yields.

In the oat experiment (Table 3), as with the other small grains, little fall or winter forage production occurred. The first harvest was not until 20 February, when low yields were harvested. Highest yielding commercial entry was produced by TAMO 397. In the second harvest on 9 March, little differences are observed between entries. On the 30 March harvest good forage production is apparent. Better yielding varieties were Dallas and Heavy Grazer 76-30. The 4th and last harvest was on 1 May; where below average harvests were measured. The highest yielding commercial entry was produced by Dallas. For the total season dry matter yield, several experimental lines produced the higher forage yields. Best yielding commercial entries were produced by Dallas and TAMO 397. For the 3-year mean yields, Dallas had the highest yield, but it was not significantly higher than TAMO 397 or Heavy Grazer 76-30. There was freeze damage in this experiment as noted in Table 3. Most of this damage was freeze-back of upper leaves, but this was an indication of resistance. Dallas is a more winter hardy variety and exhibited the least freeze damage of all varieties in the test. Winterkill can be a serious problem with oats in Texas. TAMO 397 is not recommended north of Waco as it has been winterkilled at Overton and in North Texas.

Data presented from these trials should be useful in selecting small grain varieties for your ranch. Depending on variety availability, compare forage yields to determine which variety you want to plant. Rye will usually out produce wheat for forage production, however, rye seed is often scarce and expensive. Therefore wheat is an attractive alternative. Oats may produce high forage yields if no winterkill occurs, however, it is at higher risk than rye or wheat. Ryegrass forage yields are published elsewhere in this publication. Ryegrass can also be seeded as a mixture with wheat, oats, or rye. Total season forage production may be increased as well as extending the production of high quality forage into late May.

Table 1. Wheat forage variety test at Overton, Texas for 2000-2001 and 3-year mean yields.

Variety	Harvest 1 Feb 20	Harvest 2 Mar 9	Harvest 3 Mar 30	Harvest 4 May 1	Total DMY	3-Year Mean Yield
	-----pounds of dry matter per acre----- -----					
AR 584 A-3-1*	422	865	709	3390	5386	4778
AR 494 B-2-2*	566	1010	821	2782	5179	5207
Coker 9704	598	768	553	3210	5128	- ^a
Coker 9474	489	824	685	3019	5017	B
Coker 9803	794	771	458	2955	4979	B
Pioneer 2566	621	912	669	2776	4978	4084
Coker 9663	728	982	540	2723	4973	4381
TX98U8166*	717	778	792	2676	4962	B
Ga 91426*	537	780	548	3016	4881	B
Pioneer P25R57	601	841	512	2896	4848	B
TX98U8134*	652	912	508	2621	4693	B
TX91-167*	639	674	640	2675	4629	B
TX91-57*	405	797	556	2749	4507	4482
Mason	477	812	683	2526	4499	B
TX89-55-FW*	394	549	412	3033	4388	B
Sisson	399	826	623	2434	4282	B
Pioneer 2571	331	591	489	2796	4208	B
TX98U8184*	355	913	504	2363	4134	B
Roane	382	679	427	2398	3886	B
TAM 400	322	684	470	2325	3800	B
Coker 9134	629	628	222	1942	3421	3784
Grand Mean	527	790	563	2729	4608	B
LSD	343	322	261	832	1223	B
CV	55	34	39	26	22	B

Planted October 4, 2000. Fertilization: Preplant 400 lb 10-26-26/ac. Topdressed with 40 lb N/ac on November 22, 2000, 40 lb N/ac on January 29, 2001, 40 lb N/ac on March 5, 2001, and 40 lb N/ac on April 4, 2001. Applied Finesse at 1/3 oz ai/ac on November 16, 2000 for weed control.

*Experimental line, seed presently not available.

^aNot tested over last three years.

Table 3. Oat forage variety test at Overton, Texas for 2000-2001 and 3-year mean yields.

Variety	Harvest 1 Feb 20	Harvest 2 Mar 9	Harvest 3 Mar 30	Harvest 4 May 1	Total DMY	3- Year Mean Yields	Freeze Damag e Rating
	-----pounds of dry matter per acre----- -----						0-9
TX96M1091*	834	783	1197	1212	4027	- ^a	2+
TX96M1390*	726	628	1228	1347	3929	4507	4
TX96M1560*	195	831	1590	1232	3848	B	3
TX96M1384*	644	813	1485	878	3820	B	3
TX96M1394*	919	851	1110	935	3815	B	4
LA9344E-10*	431	815	1300	1212	3758	B	3
TX95Ab1213*	527	879	1500	825	3730	B	3
Dallas	226	875	1349	1278	3728	5047	1
Tamo 397	877	939	1101	550	3468	4963	2
NF-188*	556	809	1286	773	3423	4975	2
Bob	513	785	1035	984	3316	4443	3
LA93399E-45*	568	874	1151	695	3288	B	2
Horizon 314	451	887	1074	844	3257	B	3
TXAb1581*	978	515	781	972	3246	B	1
FLX 474-1-B2-8-W*	792	883	1047	485	3207	B	3
Heavy Grazer 76-30	394	885	1450	463	3192	4723	3
Chapman	456	840	1064	606	2966	4350	2
LA90113AFL2-1-19-3-1*	238	817	1184	611	2851	B	3
Grand Mean	574	817	1219	883	3493	B	B
LSD	320	257	389	510	784	B	B
CV	47	27	27	49	19	B	B

Planted October 4, 2000. Fertilization: Preplant 400 lb 10-26-26/ac. Topdressed with 40 lb N/ac on November 22, 2000, 40 lb N/ac on January 29, 2001, 40 lb N/ac on March 5, 2001, and 40 lb N/ac on April 4, 2001. Applied Glean at 1/3 oz ai on November 15, 2000 for weed control.

*Experimental line, seed presently not available.

+Freeze damage ratings were on a 0-9 scale where 0 = no damage and 9 = dead plants.

^aLine not tested over last 3 years.

Table 2. Rye forage variety test at Overton, Texas for 2000-2001 and 3-year mean yields.

Variety	Harvest 1 Feb 2	Harvest 2 Feb 21	Harvest 3 Mar 9	Harvest 4 Mar 30	Harvest 5 May 2	Total DMY	3-Year Mean Yield
	-----pounds of dry matter per acre----- -----						
XR9909*	0	642	837	2633	3398	7510	- ^a
Maton	26	293	914	1031	4035	6299	4346
XR9903*	216	511	639	1166	3424	5956	B
NF 65*	133	768	896	971	2736	5504	B
Fayetteville	99	642	731	1220	2746	5438	B
WREN 96	243	731	615	969	2763	5321	B
SPI Rye	84	542	891	1040	2604	5161	B
Oklon	101	514	475	1290	2610	4990	4920
Elbon	119	453	782	1159	2429	4942	4551
NF 1*	279	684	751	1149	1878	4741	B
XR9908*	150	426	701	1043	2403	4723	B
GA96RSI*	416	560	680	742	2031	4429	B
Wintergrazer	48	563	643	851	2273	4378	B
70	32	477	691	1068	2072	4340	4812
Bates	225	395	476	723	2418	4237	B
SYN-T*							
Grand Mean	145	547	715	1137	2655	5199	B
CV	127	31	26	21	22	13	B
LSD	218	203	223	286	698	791	B

Planted October 4, 2000. Fertilization: Preplant 400 lb 10-26-26 ac. Topdressed with 40 lb N/ac on November 22, 2000, 40 lb N/ac on January 29, 2001, 40 lb N/ac on March 5, 2001 and 40 lb N on April 4, 2001. Applied Finesse at 1/3 oz ai/ac on November 16, 2000 for weed control.

*Experimental line, seed presently not available.

^aNot tested over past 3 years.