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SMALL GRAIN FORAGE YIELDS AT OVERTON FOR 1997-98 AND THREE-YEAR MEANS

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SUMMARY

Data presented from these trials are useful for selecting small grain varieties which have the best forage yielding potential in East Texas. Depending on variety availability, compare forage yields to determine which variety has the best yields over three years if data are available. Growers should be aware of seasonal forage distribution of varieties, when selecting which variety they will plant In general, we found the rye produces more total season forage yields, than oats or wheat. Rye will also have the best seasonal distribution as it normally produces more forage during the coldest periods of the winter compared to oats and wheat.

Key Words: Oats; Rye; Wheat; Variety Test

INTRODUCTION

Forage evaluation trials of small grains including oats, rye, and wheat are conducted annually for released varieties and experimental lines at Overton. Each of these small grain crops is an important winter annual forage in the east Texas area. There are significant differences among varieties for seasonal and total yields. Some varieties produce more forage in the fall while others produce more balanced forage yields throughout the growing season. There are also differences among varieties for winter hardiness or freeze tolerance. These trials were conducted annually to provide information to cattlemen to aid in the selection of the better varieties for their forage production system.

PROCEDURE

Oats, rye, and wheat forage variety tests were conducted annually as separate experiments. Commercial and experimental entries were evaluated over the past three years. Fertilizer application rates and dates are noted on the tables, however we normally apply a pre-plant application of fertilizer at a rate of 50 lbs N, and 100 lbs of P_2O_5 and K_2O per acre, respectively. Planting date for all tests was 16 September, 1997. Seed were drilled into a prepared seedbed at an inch depth at 110lbs/ac. Seven rows with 7-inch row spacing were planted into plots measuring 4 x 12 ft, with four replications. The entire plots were harvested with a Hege forage plot harvester at a cutting height of 2 inches on harvest dates as noted on tables. The forage plants were approximately 10 inches tall during the first harvest. Green weight of each plot was recorded. Sub-samples of each entry in one replication were collected, weighed and oven dried to determine

dry matter percentage and total forage yields for all plots. Data are presented for each harvest date, for total season yields, and for a 3-year mean for those entries that have been tested over the last 3-years.

RESULTS AND DISCUSSION

The growing season of 1997-98 had above normal temperatures, high rainfall in the fall and winter, and a very dry spring. Rainfall in by months was Oct., 6.7; Nov., 3.5; Dec., 4.4; Jan., 7.1; Feb., 5.2; Mar., 3.0; Apr., 2.3; and May, 0.6 inches, respectively. The coldest temperature was 21 degrees F. in February, however no winter freeze damage occurred.

In the oat test (Table 1) two experimental lines, TX95B1111, and Tx95C3123 produced the highest yields on the 15 December harvest, while most commercial varieties had low yields. In the 27 January harvest, all yields were quite low, indicating poor mid-winter forage producing potential of oats in northeast Texas. Higher yields were produced by varieties TAMO 397 and Dallas. Highest yield was produced at the 24 March harvest with a mean yield of 2072 lb/ac. Higher yielding varieties were 833, Dallas, TAMO 386, and Bob. On the last harvest experimental NF188, and varieties TAMO 397, and Ozark yielded best. For the total seasonal, yields are ranked according the highest production. For the 3-year mean yields, Dallas, 833, and Ozark were higher yielding. TAMO 397 had a 50% freeze damage during the 1995-96 growing season and the 3-year mean yields are an indication of this varieties susceptibility to cold.

Rye forage yields (Table 2) demonstrate the high yielding potential of this winter annual. Rye normally has better forage yielding potential during the early fall and winter months than oats or wheat. During the December 15 harvest Maton, Oklon, Bonel, and Bates produced high yields. In the 27 January harvest, Bates produced the highest yield. During the 23 February harvest, Bonel produce the highest yield, however it was not significantly higher than the other rye varieties. In the 24 March harvest Maton produced the highest forage yield. During the last harvest on 21 May, there was little differences between varieties, except Bates produced less forage. Maton produced the higher total seasonal, as well as 3-year mean yields, however it was closely followed by the other rye entries. Note that the wheat check, Coker 9543 produced only about a third of the forage as did the rye varieties.

Wheat forage yields (Table 3) indicate generally low fall and winter yields, and fairly good yields in March and April. The best yielding varieties in the 13 December harvest were Coker 9024 and Jaypee, although several experimental lines produced higher yields. All entries had low yields in the 27 January harvest. In the 3rd harvest, Jaypee was closely followed by several varieties. In the 24 March harvest, Clemens was closely followed by Coker 9024 and Jackson. On the last harvest on 29 May, all entries produced very good forage yields. Most commercial varieties produce over 2000 lbs/ac, however early lines such as FLA 302 had already begun to show a decline in yield. These data indicate that several experimental lines have much higher forage yielding potential that commercial lines. The cold tolerance and

disease resistance of these higher yielding experimental lines was not tested during the warmer than normal 1997-98 growing season, and more research will be required to determine their potential. The 3-year mean was available for only four varieties, and forage yields were quite low for all of these four lines.

Table 1. Oat forage test at Overton, Texas for 1997-98 and mean yield over 3 years.

Variety	Harvest 1 12-15	Harvest 2 1-27	Harvest 3 3-24	Harvest 4 4-20	Total Yield	3-Year Mean
	----------pounds of dry matter per acre----------					
TAMO 397	548	390	2211	2305	5453	3718
NF 188*	785	237	1976	2308	5306	–[a]
TX95B1111*	1205	451	2168	1279	5104	–
TX95C3123*	1154	345	1981	1617	5097	–
Ozark	417	112	2116	2207	4852	4305
833	126	99	2812	1781	4819	4465
TX95C3104*	957	235	1861	1601	4654	–
TAMO 386	394	122	2339	1703	4558	–
Dallas	210	300	2415	1611	4536	4490
TX93Ab715*	273	91	1782	2138	4284	–
TX95C3147*	896	215	2024	1121	4256	–
TX95C3047*	634	362	2007	1202	4204	–
TX93Ab693*	421	195	2169	1413	4198	–
TX95C3163*	914	235	2019	907	4075	3730
Bob	45	114	2306	1304	3769	–
LA90117C3-1-AB2*	105	108	1749	1509	3470	–
LA90120C2-3-AB1*	133	45	1709	1460	3347	–
LA90113C1-B-7-B-2*	407	330	1654	847	3238	–
Mean	534	221	2072	1573	4401	
LSD (0.10)	462	182	496	697	1145	

Planted September 16, 1997. Fertilization: Preplant 500 lb 10-20-20/ac. Top-dressed with 50 lb N/ac on November 11, 1997, 50 lb N/ac on January 16, 1998, 50 lb N/ac on March 4, 1998 and 40 lb N/ac on March 23, 1998. Herbicide: Glean was applied at the two leaf stage at 0.3 oz/ac.

*Experimental line, seed not presently available to farmers.
[a]Entry not tested over the last three years.

Table 2. Rye forage test at Overton, Texas for 1997-98 and mean yield over 3 years.

Variety	Harvest 1 12-15	Harvest 2 1-27	Harvest 3 2-23	Harvest 4 3-24	Harvest 5 4-21	Total Yield	3-Year Mean
	----------pounds of dry matter per acre----------						
Maton	1156	540	1273	2952	2269	8192	6465
Oklon	1079	788	1399	1822	2367	7455	5381
Bonel	1117	721	1685	1238	2519	7281	–[a]
Elbon	908	598	1499	2134	2080	7218	5382
Bates	1234	1101	1347	1521	1900	7102	5572
Coker 9543	228	131	532	473	977	2340	–[a]
Mean	954	647	1289	1690	2019	6598	–
LSD (0.10)	356	292	321	265	539	942	–

Planted September 16, 1997. Fertilization: Preplant 500 lb 10-20-20/ac. Top-dressed with 50 lb N/ac on November 11, 1997, 50 lb N/ac on January 16, 1998, 50 lb N/ac on March 4, 1998 and 40 lb N/ac on March 23, 1998. Herbicide: Glean was applied at the two leaf stage at 0.3 oz/ac.

[a]Entry not tested over the last 3 years.

Table 3. Wheat forage variety test at Overton, Texas for 1997-98 and mean yield over 3 years.

Variety	Harvest 1 12-13	Harvest 2 1-27	Harvest 3 2-23	Harvest 4 3-24	Harvest 5 4-29	Total Yield	3-Year Mean
	----------pounds of dry matter per acre----------						
TX90-83*	872	78	656	1382	3009	5996	–[a]
AR584A-3-1*	1095	242	835	716	2743	5630	–
AR494B-2-2*	1734	545	717	253	2345	5594	–
TX89-89*	1091	315	766	760	2467	5400	–
TX89-98*	662	335	921	345	2720	4983	
Coker 9024	938	202	635	843	2237	4855	–
TX87-20*	582	165	475	1287	2344	4852	–
TX87-57*	119	125	726	983	2534	4486	–
TX90-77*	919	95	883	552	2019	4467	–
TX91-13*	617	277	937	395	2078	4303	
Clemens	218	95	293	889	2342	3837	–
Coker 9134	225	183	694	657	2074	3832	–
Coker 9543	233	41	577	566	2321	3738	–
Jaypee	632	297	804	164	1773	3670	3138
Jackson	190	127	723	708	1920	3667	
Coker 9663	166	114	676	212	2367	3533	–
Pioneer 2548	113	73	648	372	2074	3281	–
FLA 302	265	313	781	160	1612	3131	2662
TAM 301	259	98	477	597	1675	3107	3119
Coker 9803	102	114	365	511	1980	3070	–
Coker 9835	115	262	522	257	1737	2894	–
Madison	219	135	594	103	1388	2438	2779
Mean	517	192	668	578	2171	4126	–
LSD (0.10)	440	151	239	214	575	907	–

Planted September 16, 1997. Fertilization: Preplant 500 lb 10-20-20/ac. Top-dressed with 50 lb N/ac on November 11, 1997, 50 lb N/ac on January 16, 1998, 50 lb N/ac on March 4, 1998, and 40 lb N/ac on March 23, 1998. Herbicide: Glean applied at the 2 leaf rust stage at 0.3 oz/ac.

*Experimental line, seed not presently available to farmers.

[a]Entry not tested over the last 3 years.