

FORAGE AND LIVESTOCK RESEARCH - 1988

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SMALL GRAIN FORAGE YIELDS AT OVERTON 1985-1987

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SUMMARY

This report presents forage yield data for clipping tests on oats, wheat, and rye at Overton, Texas. Data are presented for a 3 year period, and for the 1986-87 growing season. The major portion of the oat forage was produced in the fall and spring or during warm periods. Forage production of rye was quite uniform even during January and February with no winterkill. Wheat was intermediate between oats and rye for seasonal forage production. When selecting small grain varieties to plant on your farm or ranch, data from more than one year should be used to overcome environmental variations.

INTRODUCTION

A large number of small grain varieties of wheat, rye, oats, and ryegrass are available to cattlemen each year to be planted as winter annuals. Selection of adapted, high yielding varieties can result in high forage yields and profits for cattlemen. Selection of low yielding, unadapted varieties which may winterkill will usually result in an unprofitable winter pasture program. These studies were conducted to determine the forage yielding potential of numerous experimental and newly released varieties of wheat, oats, and rye in East Texas and to determine the seasonal distribution of the winter small grains. Finally, to test the varieties for winterhardiness and disease resistance or susceptibility.

PROCEDURES

Available commercial and experimental wheat, oat, and rye cultivars were evaluated for adaptation, forage production, and rust resistance in 1984-85, 1985-86, and 1986-87 at Overton, Texas.

All tests were planted in a prepared seedbed. Planting dates at Overton were early September in all three years. Seeding rates were 120 lbs/ac for all three small grains. Seed was planted with a drill with six row plots 12 ft in length and with 8 inch row spacing. Each

forage species was planted into a separate experiment. Each experiment was replicated four times.

Fertilizer application rates varied each year. Preplant applications were 24-96-96 lbs/ac of N, P₂O₅ and K₂O, respectively, for 1984 and 1986. In 1985, fertilization rates were 60-60-80 lbs/ac respectively, for the three nutrients. In 1984-85, N was applied as urea at .96 lbs/ac on Oct. 11, 50 lbs on Dec. 14 and 65 lbs on Feb. 20 for a total N rate of 235 lbs/ac. In 1985-86, N was applied as urea at a rate of 100 lbs on Oct. 16 and 50 lbs/ac on Jan. 22, for a total N rate of 210 lbs N/ac. In 1986-87, N was applied as ammonium nitrate at rates of 100 lbs/ac on Oct. 3, 25 lbs on Jan. 5, and 40 lbs on Feb. 19, for a total N rate of 189 lbs/ac.

RESULTS

Weather: In 1984-85 good stands were obtained with each of the three species. Winterfreeze injury did occur, which resulted in reduced forage yields particularly in oats and wheat. Winterkill injury resulted in lower yields for less hardy varieties such as NK Probrand 812, Mit, and McNair 1003. Varieties which were winterhardy and tended to go dormant were not injured and generally produced higher yields in 1984-85. Examples of winterhardy varieties are Bounty 100 and TAM-106.

In 1985-86, a dry period in April may have shortened the growing season particularly with wheat and oats, however good yields were produced. In 1986-87, little freeze injury occurred and good yields resulted.

Data for oats for 1986-87 (Table 1) are presented. Above average yields were produced with a mean yield of 7411 lbs/ac, over all varieties. The highest yield was produced by Noble Foundation 20, an experimental line. Note that nearly one-half of the forage was produced between March 3 and April 9 in 1987.

The mean yield for the rye experiment (Table 2) was 6840 lbs/ac for total season yield. The data indicate that there was uniform forage production with the exception of January when the rye was not harvested.

Wheat was harvested at six dates in 1986-87 (Table 3) with above average yields. Two triticale varieties produced the highest yields

(including wheat) indicating their good forage potential. Much of the forage from wheat was produced between March 3rd and April 2nd, however wheat also produced some forage during December through March 3rd. A late spring freeze on April 3rd injured wheat not being clipped or grazed, but did not seem to damage the wheat in this clipping test.

Table 4 presents the three year mean yields for the three species. Note that with wheat, several of the means are from only two years, and comparison with variety means from 3 years data may be misleading. These data, whether 2 or 3 year means, provide a better estimate of yield potential than do a single years results.

TABLE 1. OAT FORAGE VARIETY TEST AT OVERTON, TX 1986-87.

Variety	Harvest Dates					Total Yield
	Oct. 28	Dec. 12	Mar. 3	Apr. 9	May 14	
	-----pounds of oven dried forage per acre-----					
Noble Foundation 20	1150	945	2407	4004	1353	9859
Harpool 422	760	607	1812	5398	1230	9808
Noble Foundation 170	1100	918	1943	4823	949	9733
Bob	980	904	2088	3737	843	8553
Noble Foundation 63	820	634	1348	4037	1564	8405
Citation	1330	877	2088	3152	702	8150
Coker 227	780	500	1696	4165	755	7897
Mesquite	720	445	1595	4514	597	7872
Harpool 833	820	702	1885	3480	843	7730
Noble Foundation 188	710	378	1566	3852	1177	7683
Tx 81C 3102	930	918	1711	3171	843	7573
Big Mac	820	472	1798	3602	790	7483
Tx 81C 676	340	580	1696	3523	738	6878
Tx 82C 6023	300	270	1348	4000	738	6656
Tx 82M 4964	920	918	2204	1964	456	6462
Tx 81C 3643	440	337	1508	2877	632	5795
SV 85-3919	420	1121	1015	2488	685	5729
SV 85-3905	460	796	1174	2534	702	5668
Tx 83 Ab 2923	860	486	1102	2624	580	5651
Tx 82 M 4350	780	283	623	2478	474	4639
Mean	772	655	1631	3521	833	7411
LSD (10% level)	335	429	563	890	NS	1729
CV	36	56	29	21	67	19

Planted on September 10, 1986.

a/ No significant differences in yield between varieties.

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

Topdressed 100 lbs/ac actual N on Oct. 3, 1986.

25 lbs/ac actual N on Jan. 5, 1987.

40 lbs/ac actual N on Feb. 19, 1987.

Weed control: Applied one third ounce glean/acre on Sept. 25, 1986.

TABLE 2. RYE FORAGE VARIETY TEST AT OVERTON, TX 1986-87.

Variety	Harvest Dates							Total Yield
	Oct. 28	Dec. 4	Feb. 4	Feb. 23	Mar. 19	Apr. 10		
-----pounds of oven dried forage per acre-----								
East Texas Seed Exp. 1	1330	1209	1650	884	2151	616	7840	
Noble Foundation 14	1320	1404	1738	897	1890	560	7809	
Wintergrazer 70	1340	1339	1487	831	1674	440	7111	
Noble Foundation 73	1150	1235	1675	818	1593	584	7055	
Noble Foundation 142	1110	1196	1175	791	2025	639	6936	
Maton	1270	1339	1013	713	1809	578	6722	
Fla. Exp. 201	980	962	2651	660	810	554	6617	
Fla. Syn. T	1130	1144	1801	699	1305	261	6340	
Bonel	780	949	1125	857	1899	560	6170	
Elbon	1100	1066	987	686	1710	247	5797	
Mean	1151	1184	1530	784	1687	504	6840	
1sd (10% level)	404	382	488	160	379	349	1179	
CV	29	26	26	17	18	57	14	

Planted on Sept. 12, 1986.

Fertilizer application: Preplant 400 lbs/ac of 6-24-24 (N, P₀₅, and K₂₀).
 Topdressed 100 lbs/ac actual N on Oct. 3, 1986.
 25 lbs/ac actual N on Jan. 5, 1987
 40 lbs/ac actual N on Feb. 19, 1987.

Weed control: Applied one third ounce glean/acre on Sept. 25, 1986.

TABLE 3. WHEAT AND TRITICALE FORAGE VARIETY TEST AT OVERTON, TX 1986-87.

Variety	Harvest Dates							Total Yield
	Oct. 29	Dec. 5	Feb. 5	Mar. 3	Apr. 2	May 14	Yield	
	pounds of oven dried forage per acre							
Noble Foundation 185 triticale	1800	544	1115	1160	3163	1006	8788	
Nutriseed 6-6-2 triticale	1620	592	588	855	2903	1348	7906	
Fillmore	940	320	185	522	3403	1923	7294	
AgriPro Twain	1870	672	185	609	3243	521	7100	
Beagle Triticale	1860	992	1068	507	1661	970	7058	
Nutriseed 2-2-4 triticale	1380	208	138	638	3343	1276	6984	
TAM-107	1690	320	107	754	3243	790	6904	
Fla. 302	1140	720	588	986	2162	1150	6746	
SV HT 8005 UNO triticale	1190	224	123	493	3083	1402	6515	
Noble Foundation 126	2200	448	108	493	2762	449	6460	
Tx-79-19-1 Exp.	1330	336	324	826	2402	1186	6405	
Tx-78-7303 Exp.	2300	960	1084	667	840	377	6228	
Bradford	880	368	278	797	3023	826	6172	
Tx-81V6614 Exp.	1640	576	247	667	2161	898	6143	
Milburn	2180	624	371	667	1581	539	5962	
AgriPro Magnum	1040	144	93	609	2763	1240	5888	
Caldwell	810	144	15	290	3524	1024	5807	
Compton	1200	192	61	522	3103	683	5761	
AgriPro NASW 76-59	1280	160	92	507	2342	826	5675	
Tx-82-118 Exp.	730	400	123	623	2923	737	5536	
Siouxland	860	304	61	580	3023	575	5403	
Tx-79-30 Exp.	1580	384	371	652	1902	467	5356	
Adder	760	144	61	493	2943	755	5156	
Fla. 201 triticale	1770	704	681	435	1161	359	5110	
Pioneer 2157	1020	480	123	478	2222	647	4970	
Collin	1420	208	262	725	1561	683	4860	
McNair 1003	1330	288	402	594	1381	719	4714	
Tx-80-32 Exp.	810	336	464	667	1261	539	4077	
Coker 916	480	192	169	580	1761	826	4008	
Rosen	630	288	216	652	1561	449	3796	
Mean	1325	409	324	635	2414	840	5947	
LSD (10% level) ^{a/}	854	346	200	228	911	573	2119	
CV	55	72	52	30	32	58	30	

^{a/} Planted on Sept. 10, 1986.

To be considered significantly different, yield differences between varieties should be greater than the LSD value.

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

Topdressed 100 lbs/ac N on Oct. 3, 1986, 25 lbs/ac N on Jan. 5, and 40 lb/ac actual N on Feb. 19, 1987.

Weed Control: Applied one third ounce of glean/acre on Sept. 25, 1986.

TABLE 4. FORAGE YIELDS OF OATS, RYE, WHEAT AND TRITICALE AVERAGED OVER 3 YEARS (1984-85, 1985-86, 1986-87) AT OVERTON, TX.

Variety	Harvest Period			Average Total Yields
	Nov.-Dec. 3 yr. mean	Jan.-Feb. 3 yr. mean	Mar.-April-May 3 yr. mean	
<u>OATS</u>				
Harpool 422	1800	1855	6024	9679
Mesquite	1693	1902	5452	9047
Bob	2024	1889	4749	8662
Harpool 833	2063	1771	4759	8593
Big Mac	1824	1712	4749	8285
TAM-0-386	1445	1364	4369	7178
<u>RYE</u>				
Noble Foundation 142	1872	2226	2027	6125
Maton	1897	1969	2096	5962
Bonel	1587	2210	2112	5909
Elbon	1732	2114	1589	5435
<u>WHEAT</u>				
Beagle (Triticale)*	2128 *	1507 *	3826 *	7461
Tx-78-7303*	2306 *	2406 *	2429 *	7141
TAM-107*	1673 *	1344 *	4110 *	7127
Siouxland	1328 *	1302 *	3663 *	6293
Bradford	1316	1416	2984	5716
Pioneer 2157*	1426 *	1122 *	2766 *	5314
Fla. 302*	1538 *	1467 *	2298 *	5303
McNair 1003*	1366	1778	1968	5112
Tx-82-185*	1375 *	1716 *	1877 *	4968
Rosen	1146	1545	2080	4771
Coker 916	904*	959*	1920*	3783

*This variety was tested in only two years rather than three years.