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Wheat, Oats, and Rye 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 3 years. Seeding rates were 120 lbs/A 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/A of N, P_2O_5 and K_2O, respectively, for 1984 and 1986. In 1985, fertilization rates were 60-60-80 lbs/A respectively, for the three nutrients. In 1984-85, N was applied as urea at .96 lbs/A on Oct. 11, 50 lbs on Dec. 14 and 65 lbs on Feb. 20 for a total N rate of 235 lbs/A. In 1985-86, N was applied as urea at a rate of 100 lbs on Oct. 16 and 50 lbs/A on Jan. 22, for a total N rate of 210 lbs N/A. In 1986-87, N was applied as ammonium nitrate at rates of 100 lbs/A on Oct. 3, 25 lbs on Jan. 5, and 40 lbs on Feb. 19, for a total N rate of 189 lbs/A.

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/A, 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 6,840 lbs/A 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 3-year mean yields for the three species. Note that with wheat, several of the means are from only 2 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 4. FORAGE YIELDS OF OATS, RYE, WHEAT, AND TRITICALE AVERAGED OVER 3 YEARS (1984-85, 1985-86, 1986-87) AT OVERTON

Variety	Harvest Period			Average Total Yields
	Nov.-Dec. 3-yr. mean	Jan.-Feb. 3-yr. mean	Mar.-April-May 3-yr. mean	
	pounds of oven dried forage per acre			
Oats				
Harpool 422	1,800	1,855	6,024	9,679
Mesquite	1,693	1,902	5,452	9,047
Bob	2,024	1,889	4,749	8,662
Harpool 833	2,063	1,771	4,759	8,593
Big Mac	1,824	1,712	4,749	8,285
TAM-O-386	1,445	1,364	4,369	7,178
Rye				
Noble Foundation 142	1,872	2,226	2,027	6,125
Maton	1,897	1,969	2,096	5,962
Bonel	1,587	2,210	2,112	5,909
Elbon	1,732	2,114	1,589	5,435
Wheat				
Beagle (Triticale)*	2,128*	1,507*	3,826*	7,461
Tx-78-7303*	2,306*	2,406*	2,429*	7,141
TAM-107*	1,673*	1,344*	4,110*	7,127
Siouxland	1,328*	1,302*	3,663*	6,293
Bradford	1,316	1,416	2,984	5,716
Pioneer 2157*	1,426*	1,122*	2,766*	5,314
Fla. 302*	1,538*	1,467*	2,298*	5,303
McNair 1003*	1,366	1,778	1,968	5,112
Tx-82-185*	1,375*	1,716*	1,877*	4,968
Rosen	1,146	1,545	2,080	4,771
Coker 916	904*	959*	1,920*	3,783

*This variety was tested in only 2 years rather than 3.

TABLE 1. OAT FORAGE VARIETY TEST AT OVERTON 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	1,150	945	2,407	4,004	1,353	9,859
Harpool 422	760	607	1,812	5,398	1,230	9,808
Noble Foundation 170	1,100	918	1,943	4,823	949	9,733
Bob	980	904	2,088	3,737	843	8,553
Noble Foundation 63	820	634	1,348	4,037	1,564	8,405
Citation	1,330	877	2,088	3,152	702	8,150
Coker 227	780	500	1,696	4,165	755	7,897
Mesquite	720	445	1,595	4,514	597	7,872
Harpool 833	820	702	1,885	3,480	843	7,730
Noble Foundation 188	710	378	1,566	3,852	1,177	7,683
Tx 81C 3102	930	918	1,711	3,171	843	7,573
Big Mac	820	472	1,798	3,602	790	7,483
Tx 81C 676	340	580	1,696	3,523	738	6,878
Tx 82C 6023	300	270	1,348	4,000	738	6,656
Tx 82M 4964	920	918	2,204	1,964	456	6,462
Tx 81C 3643	440	337	1,508	2,877	632	5,795
SV 85-3919	420	1,121	1,015	2,488	685	5,729
SV 85-3905	460	796	1,174	2,534	702	5,668
Tx 83Ab 2923	860	486	1,102	2,624	580	5,651
Tx 82M 4350	780	283	623	2,478	474	4,639
Mean	772	655	1,631	3,521	833	7,411
LSD (10% level)	335	429	563	890	NS[a]	1,729
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/A of 6-24-24 - (N, P_2O_5, and K_2O). Topdressed—100 lbs/A actual N on Oct. 3, 1986; 25 lbs/A actual N on Jan. 5, 1987; 40 lbs/A 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 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	1,330	1,209	1,650	884	2,151	616	7,840
Noble Foundation 14	1,320	1,404	1,738	897	1,890	560	7,809
Wintergrazer 70	1,340	1,339	1,487	831	1,674	440	7,111
Noble Foundation 73	1,150	1,235	1,675	818	1,593	584	7,055
Noble Foundation 142	1,110	1,196	1,175	791	2,025	639	6,936
Maton	1,270	1,339	1,013	713	1,809	578	6,722
Fla. Exp. 201	980	962	2,651	660	810	554	6,617
Fla. Syn. T	1,130	1,144	1,801	699	1,305	261	6,340
Bonel	780	949	1,125	857	1,899	560	6,170
Elbon	1,100	1,066	987	686	1,710	247	5,797
Mean	1,151	1,184	1,530	784	1,687	504	6,840
LSD (10% level)	404	382	488	160	,379	349	1,179
CV	29	26	26	17	,18	57	14

Planted on Sept. 12, 1986. Fertilizer application:

Preplant—400 lbs/A of 6-24-24 (N, P_2O_5, and K_2O). Topdressed—100 lbs/A actual N on Oct. 3, 1986; 25 lbs/A actual N on Jan. 5, 1987; 40 lbs/A 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 1986-87

Variety	Harvest Dates						Total Yield
	Oct. 29	Dec. 5	Feb. 5	Mar. 3	Apr. 2	May 14	
	pounds of oven dried forage per acre						
Noble Foundation 185 triticale	1,800	544	1,115	1,160	3,163	1,006	8,788
Nutriseed 6-6-2 triticale	1,620	592	588	855	2,903	1,348	7,906
Fillmore	940	320	185	522	3,403	1,923	7,294
AgriPro Twain	1,870	672	185	609	3,243	521	7,100
Beagle Triticale	1,860	992	1,068	507	1,661	970	7,058
Nutriseed 2-2-4 triticale	1,380	208	138	638	3,343	1,276	6,984
TAM-107	1,690	320	107	754	3,243	790	6,904
Fla. 302	1,140	720	588	986	2,162	1,150	6,746
SV HT 8005 UNO triticale	1,190	224	123	493	3,083	1,402	6515
Noble Foundation 126	2,200	448	108	493	2,762	449	6,460
Tx-79-19-1 Exp.	1,330	336	324	826	2,402	1,186	6,405
Tx-78-7303 Exp.	2,300	960	1,084	667	840	377	6,228
Bradford	880	368	278	797	3,023	826	6,172
Tx-81V6614 Exp.	1,640	576	247	667	2,161	898	6,143
Milburn	2,180	624	371	667	1,581	539	5,962
AgriPro Magnum	1,040	144	93	609	2,763	1,240	5,888
Caldwell	810	144	15	290	3,524	1,024	5,807
Compton	1,200	192	61	522	3,103	683	5,761
AgriPro NASW 76-59	1,280	160	92	507	2,342	826	5,675
Tx-82-118 Exp.	730	400	123	623	2,923	737	5,536
Siouxland	860	304	61	580	3,023	575	5,403
Tx-79-30 Exp.	1,580	384	371	652	1,902	467	5,356
Adder	760	144	61	493	2,943	755	5,156
Fla. 201 triticale	1,770	704	681	435	1,161	359	5,110
Pioneer 2157	1,020	480	123	478	2,222	647	4,970
Collin	1,420	208	262	725	1,561	683	4,860
McNair 1003	1,330	288	402	594	1,381	719	4,714
Tx-80-32 Exp.	810	336	464	667	1,261	539	4,077
Coker 916	480	192	169	580	1,761	826	4,008
Rosen	630	288	216	652	1,561	449	3,796
Mean	1,325	409	324	635	2,414	840	5,947
LSD (10% level)[a]	854	346	200	228	911	573	2,119
CV	55	72	52	30	32	58	30

Planted on Sept. 10, 1986.

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

Fertilizer application: Preplant 400 lbs/A of 6-24-24 (N,P_2O_5, and K_2O).
Topdressed 100 lbs/A N on Oct. 3, 1986, 25 lbs/A N on Jan. 5, and 40 lbs/A actual N on Feb. 19, 1987.

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