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Annual Ryegrass Forage Variety Tests for 1986-87 and Two-Year Averages

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Summary

Annual Italian ryegrass is an important forage crop in East Texas. This report presents data on forage yields, winterhardiness, and crown rust resistance of commercial and experimental ryegrass varieties. Information on two experimental festulolium lines and a bromegrass line is also presented. Mean forage yield data are reported from 2 years at Overton and for crown rust severity levels from Angleton. Tetragold produced the highest yield over 2 years of 10,523 lbs of forage/A, however, Gulf and Dama produced nearly equal yields of 10,346 and 10,213 lbs/A, respectively. Gulf remained fairly resistant to crown rust, while Marshall was susceptible.

Introduction

This report presents forage yields obtained in ryegrass variety tests conducted by Texas Agricultural Experiment Station personnel at Overton for 1986-87 and for a 2-year period. These results are useful to growers in selecting the ryegrass variety which has the most potential in their area. Since there is a large difference in the price of seed of ryegrass varieties, this data should help growers determine whether higher prices of some varieties are worth the cost.

Procedures

Available commercial and experimental ryegrass varieties were evaluated for adaptation and forage production in 1985-86 and 1986-87 at Overton, and for crown rust resistance at Angleton in 1986-87. All tests were planted in a prepared seedbed. Planting dates at Overton were Sept. 20 and 22, in 1985 and 1986, respectively. Seeding rates were 30 lbs/A at Overton and 25 lbs/A at Angleton. At Overton, plot size was 4×10 ft with seed broadcast and covered by a cultipactor. At Angleton, observation plots consisted of two 5-ft rows, spaced 1 ft apart. Fertilizer application rates varied each year. Preplant application at Overton was 60-60-80 lbs/A (N-P₂O₅ K₂O) in 1985, and 24-96-96 lbs/A in 1986, respectively. In 1985-86, topdress-

ing was with urea. Rates were (actual N) 100 lbs on Sept. 16, and 50 lbs/A on Jan. 22. In 1986-87, 100 lbs, 25 lbs, and 40 actual lbs/A (actual N as ammonium nitrate) were applied on Oct. 3, Jan. 5, and Feb. 19, respectively. Forage plots were harvested with a Hege forage harvester, which has a sickle bar. Percent dry matter (oven dried forage) was determined in order to obtain total dry matter. Experimental design was a randomized block with four replications.

Results

Weather: In 1985-86, we experienced a very dry period from December through February and wet conditions from March through mid-June. These conditions resulted in high yields of ryegrass late in the spring. In 1986-87, rainfall amounts were good except in January and April of 1987 when ryegrass yields were reduced due to dry growing conditions. The dry conditions in April resulted in ryegrass producing seed heads in April and May with little vegetative forage production. Winterkilling of ryegrass varieties did not result from a freeze (27°F) in early April, however, forage production may have been reduced.

The forage yields produced in 1986-87 (Table 1) were very low and only about half of the total forage yields produced in 1985-86. The low yields were the result of almost no forage being produced in the first harvest (Dec. 19) and also, because of the reduced yields in the last harvest (June 11). Tetragold produced the highest total season yield of 5,847 lbs/A. *Bromus catharticus* is an experimental specie in the bromegrass family which was second in total forage production with a yield of 5,624 lbs/A.

The average yields presented in Table 2, are from 2-year results and are more useful in showing the true yield potential of ryegrass varieties in East Texas. Tetragold had the highest mean total season yield of 10,523 lbs/A, however, this yield is very similar to the next four varieties mean yields. Most of the forage production was after March 1.

Crown rust is a fungus disease which can cause a reduction in forage quantity and quality under East Texas growing conditions. Data collected at Angleton in 1987 (Table 3) indicated a severe epidemic had resulted near the Gulf Coast. Many of the ryegrass varieties in the 1986-87 test are not adapted to East Texas conditions and do not have resistance to crown rust. Varieties which had a crown rust rating of 15 percent should be considered susceptible. Note that Gulf remained fairly resistant, however, Marshall was very susceptible.

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

Variety	Harvest Dates				Total Yields
	Dec. 19	Mar. 4	Apr. 14	June 11	
----- pounds of oven dried forage per acre -----					
Tetragold	57	2,324	2,575	891	5,847
Bromus Catharticus	310	1,568	2,512	1,233	5,624
Top-One	253	1,778	2,136	1,428	5,595
LMW-2	69	2,226	1,674	957	4,927
Magnolia	57	1,694	2,303	802	4,856
Fla 80	11	2,408	1,549	724	4,692
Ellire	0	1,372	2,010	1,296	4,678
Aubade	218	1,848	1,423	1,179	4,669
Exalta	34	1,246	2,429	929	4,638
Tx-R-86-1	34	2,170	1,780	633	4,617
WW19	34	742	2,345	1,483	4,605
FLX 1986 LR	57	1,526	2,156	786	4,526
Ursus	57	1,092	2,219	955	4,324
Minaret	0	1,148	1,738	1,348	4,234
Gulf	57	1,652	1,737	631	4,077
Tx-R-85-1	92	2,212	1,235	489	4,028
Urbana	23	1,106	1,465	1,313	3,907
Tx-R-86-2-L	23	1,904	1,361	569	3,857
Dama	34	644	2,219	885	3,782
Tandem Festulolium	0	518	1,884	1,322	3,725
Tx-R-85-2	34	1,540	1,465	544	3,584
Kemal Festulolium	0	182	1,717	1,586	3,484
Cervus	103	1,078	1,214	1,032	3,427
Lunar	34	1,358	1,046	835	3,274
Tosca	23	756	1,591	731	3,101
Marshall	0	980	1,088	979	3,047
Tx-R-84-1	0	1,610	1,067	293	2,970
Cebeco ELM 10	11	784	1,089	944	2,828
Cebeco LM 8	0	420	712	935	2,066
Cebeco EIR-4	11	476	628	882	1,997
Mean	55	1,345	1,679	954	4,033
LSD	NS ^a	650	NS ^a	299	1,630
CV	219	41	57	26	34

Planted on September 22, 1986.

^aNo significant differences in yield between varieties.

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

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.

TABLE 2. FORAGE YIELDS OF RYEGRASS AVERAGED OVER 2 YEARS (1985-86, 1986-87) AT OVERTON

Variety	Harvest Period				Total season mean yields
	Nov.-Dec.	Jan.Feb.	Mar-April-May	June	
----- pounds of oven dried forage per acre -----					
Tetragold	815	2,846	4,777	2,085	10,523
Gulf	828	2,538	4,469	2,511	10,346
Dama	1,077	1,529	4,485	3,122	10,213
Bromus Catharticus	961	2,084	4,136	2,895	10,076
Tx-R-85-1	1,067	2,768	3,793	2,262	9,890
Urbana	1,013	2,172	3,582	2,661	9,428
Marshall	1,184	1,974	4,049	2,377	9,584
Tx-R-84-1	1,041	2,275	3,418	1,922	8,656
Fla. 80	549	2,577	2,645	362	6,133

TABLE 3. ANGLETON RYEGRASS CROWN RUST RATING — 1987

Ent. No.	Entry	% Crown Rust ^a Rating
1	Gulf	8
2	Lunar	60
3	Marshall	85
4	TX-R-84-1	10
5	TX-R-85-1	5
6	TX-R-85-2	8
7	TX-R-86-1	5
8	TX-R-86-2-L	5
9	FLX 1986 LR	9
10	Ursus	5
11	WWI9	48
12	Urbana	25
13	LMW-2	48
14	Ellire	15
15	Dama	7
16	Cebeco EIR-4	53
17	Cervis	8
18	Tosca	25
19	CEB Lm. 8	45
20	Cebeco ELm10	45
21	Fla. 80	3
22	Tetragold	4
23	Bromus Catharticus bromegrass	0
24	Top-One	18
25	Aubade	35
26	Magnolia	10
27	Tandem Festulolium	1
28	Kemal Festulolium	2
29	Exalta	7
30	Minaret	38

^aData recorded on 4/30/87 and are a mean of two replications.