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RYEGRASS FORAGE VARIETY TESTS FOR 1986-87 AND 2 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 two years of 10,523 lbs of forage/ac, however, Gulf and Dama produced nearly equal yields of 10,346 and 10,213 lbs/ac, 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 September 20 and 22 in 1985, and 1986, respectively. Seeding rates were 30 lbs/ac at Overton and 25 lbs/ac at Angleton. At Overton, plot size was 4 x 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 lb/ac (N-P₂O₅ - K₂O) in 1985, and 24-96-96 lbs/ac in 1986, respectively. In 1985-86,

topdressing was with urea. Rates were (actual N) 100 lbs on Sept. 16, and 50 lbs/ac on Jan. 22. In 1986-87, 100 lbs, 25 lbs, and 40 actual lbs/ac (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 5847 lbs/ac. Bromus catharticus is an experimental specie in the brome grass family which was second in total forage production with a yield of 5624 lbs/ac.

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/ac, 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% should be considered susceptible. Note that Gulf remained fairly resistant, however, Marshall was very susceptible.

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

Variety	Harvest Dates			pounds of oven dried forage per acre	Total Yields
	Dec. 19	Mar. 4	Apr. 14		
Tetragold	57	2324	2575	891	5847
Bromus Catharticus	310	1568	2512	1233	5624
Top-One	253	1778	2136	1428	5595
LMW-2	69	2226	1674	957	4927
Magnolia	57	1694	2303	802	4856
Fla 80	11	2408	1549	724	4692
Ellire	0	1372	2010	1296	4678
Aubade	218	1848	1423	1179	4669
Exalta	34	1246	2429	929	4638
TX-R-86-1	34	2170	1780	633	4617
WWI 9	34	742	2345	1483	4605
FLX 1986 LR	57	1526	2156	786	4526
Ursus	57	1092	2219	955	4324
Minaret	0	1148	1738	1348	4234
Gulf	57	1652	1737	631	4077
TX-R-85-1	92	2212	1235	489	4028
Urbana	23	1106	1465	1313	3907
TX-R-86-2-L	23	1904	1361	569	3857
Dama	34	644	2219	885	3782
Tandem Festulolium	0	518	1884	1322	3725
TX-R-85-2	34	1540	1465	544	3584
Kemal Festulolium	0	182	1717	1586	3484
Cervus	103	1078	1214	1032	3427
Lunar	34	1358	1046	835	3274
Tosca	23	756	1591	731	3101
Marshall	0	980	1088	979	3047
TX-R-84-1	0	1610	1067	293	2970
Cebeco ELM 10	11	784	1089	944	2828
Cebeco LM 8	0	420	712	935	2066
Cebeco EIR-4	11	476	628	882	1997
Mean	55	1345	1679	954	4033
LSD	NS	650	NS	299	1630
CV	219	41	57	26	34

Planted on September 22, 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.

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

Variety	-----Harvest Period-----				Total season mean yields
	Nov.-Dec.	Jan.-Feb.	Mar.-April-May	June	
	-----pounds of oven dried forage per acre-----				
Tetragold	815	2846	4777	2085	10523
Gulf	828	2538	4469	2511	10346
Dama	1077	1529	4485	3122	10213
Bromus Catharticus	961	2084	4136	2895	10076
Tx-R-85-1	1067	2768	3793	2262	9890
Urbana	1013	2172	3582	2661	9428
Marshall	1184	1974	4049	2377	9584
Tx-R-84-1	1041	2275	3418	1922	8656
Fla. 80	549	2577	2645	362	6133

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	WWI 9	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

^{a/} Data recorded on 4/30/87 and are a mean of two replications.