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RYEGRASS FORAGE YIELDS AT OVERTON AND BEAUMONT FOR 1997-98 AND 5-YEAR MEANS

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SUMMARY

Forage yields are presented for commercial and experimental annual ryegrass (*Lolium multiflorum*) lines grown at Overton and Beaumont, Texas during the past five years. Data are presented for the 1997-98 growing season and for a 5-year mean. Data indicate that over the 5-year period, varieties with more winter hardiness, have higher mean yields at Overton, and varieties with less winter hardiness have higher yields at Beaumont. In selection of varieties, more than one years data is required to indicate which varieties will produce higher yields.

Key Words: *Lolium multiflorum* Variety test rye grass

INTRODUCTION

Annual ryegrass is an important forage crop in East Texas. Varieties vary in total forage yields and seasonal distribution, winter hardiness, and for disease resistance. Yield potential of varieties also vary depending on location or region of Texas they are grown in. This study was conducted over several years at the both the TAMU Agricultural Research and Extension Center at Overton and the TAMU Agricultural Research and Extension Center at Beaumont to compare varieties for forage yield potential, cold tolerance, and crown rust resistance under East Texas soils and climatic conditions.

PROCEDURE

All available ryegrass varieties and some experimental lines were evaluated during the past 5 years at Overton and 3 years at Beaumont. Soil type at Overton was on a Darco loamy sand, and at Beaumont on a Bernard-Morey silt loam. Fertilizer rates are noted on Tables 1 and 2. Tests were planted into a prepared seedbed at 1/4 inch depth at 30 lb/ac. Planting dates were mid-September normally and on 16 September 16 at Overton, and 2 October at Beaumont in 1997. Seed were planted in 7 rows spaced 6 inch row spacing. Plot size was 4 x 12 ft with four replications. At Overton, plots were harvested with a Hege plot harvester at a cutting height of 2 inches at five harvest dates. At Beaumont, ryegrass was harvested with a rotary mower at a height of 2 inches, and forage was collected in a basket.

Ryegrass was approximately 6-inches tall at first harvest at each location.

RESULTS AND DISCUSSION

The environmental conditions in the fall, winter, and early spring of 1997-98 were very wet, with a dry spring. No winter freeze damage occurred at either test site due to above normal temperatures during the growing season..

Overton: In the first clipping on 18 December harvest, all yields were quite low (Table 1). In the 2nd harvest on 30 January, yields were improved. Highest yielding varieties were "Grazer", "Surrey", "Ribeye", and "Gulf". In the 17 March and 17 April harvests yields were very good on most entries, and little significant differences (as judged by the LSD for each date) are apparent between varieties. In the last harvest on 15 May, yields were reduced, compared to the previous two harvests. This was due to some entries reaching maturity, and also due to lack of moisture. In the 15 May harvest, the highest yields were produced by "Rio", followed by "Passerel", "Big Daddy", "Marshall", and several other varieties. The total season highest yielding entries were produced by Grazer, "Stampede", Surrey, "Abundant", Gulf, and other varieties. The 5-year mean yields provide a much better indication of yield potential than one years data. The 1997-98 growing season was much wetter than normal without any stress due to freeze damage. Two of our best varieties such as "Marshall" and "TAM 90" did not perform well during this one growing season. Note that the highest yielding varieties over a five year period were TAM 90, Marshall, and Surrey followed by several other lines. These three varieties have excellent winter hardiness, and produce excellent forage yields most years. Gulf and Grazer are adapted more to south Texas environmental conditions, however in the 1997-98 growing season they produced very good yields.

Beaumont: The first harvest was made on 4 November (Table 2). Good yields were recorded with higher early season yields being produced by commercial lines Tetrablend 444, Gulf and Rio. During the next 6 harvests, little real differences are apparent between entries. Some differences between varieties within each harvest date were significant as judged by the LSD. For the total season yields, two experimental (OFI-PM1 and GXS FL 1995) produced highest yields. Better yielding varieties were "Cetus", Tetrablend 444, Gulf, and Abundant, followed by several other entries. For the 5-year mean yields, the best varieties were Abundant, Big Daddy, Rio, "Jackson", and Gulf. TAM 90 and Marshall are not the higher yielding entries at Beaumont, which is near the Gulf Coast. This indicates that the winter hardiness which these two lines possess, is normally not required to survive and produce forage in this region of Texas. When south Texas does experience a cold winter, these two varieties will have an advantage.

Crown rust was not a problem in Texas in 1998. In past years, Marshall has proven to be susceptible to crown rust and for this reason it is not recommended within 100 miles of the Gulf Coast.

Resistant varieties include Gulf, TAM 90, Jackson, Surrey, and Rio.

Differences in yields between varieties of less than the LSD (647 lbs for total yield) may be due to experimental error and should not be considered significant. The data presented from these experiments should be useful in selecting ryegrass varieties best adapted to northeast Texas, and south Texas. Winter hardiness is extremely valuable in those years when winter-kill occurs. In north Texas, the small additional seed cost of better varieties such as TAM 90, Marshall, Surrey, Jackson, or Rio should be well worth their extra forage yielding potential.

Table 1. Ryegrass forage variety test at Overton for 1997-98 and 5-year mean yields.

Variety	Harvest 1 12-18	Harvest 2 1-30	Harvest 3 3-17	Harvest 4 4-17	Harvest 5 5-15	Total DMY	5-Year Mean
	-----pounds dry matter per acre-----						
Grazer	82	876	2904	3043	970	7875	– ^a
ME 94*	100	490	3006	2960	1054	7609	–
Stampede	119	601	2853	2978	992	7542	–
Surrey	216	772	2627	2442	827	6882	5700
GXS FL 1995*	188	619	2399	2487	1159	6851	--
WVPB-AR-93-101*	187	442	2547	2573	977	6726	5502
Abundant	131	623	2283	2521	1151	6709	–
Gulf	117	681	2233	2853	800	6683	5463
Big Daddy	169	458	2195	2620	1210	6653	5636
WVPB-AR-F-11*	167	340	2207	2744	1193	6650	--
Ribeye	144	747	2600	2392	696	6578	–
Flax 1997*	156	376	2276	2588	1179	6576	–
Rio	105	421	1880	2750	1409	6565	5467
OFI-PM1*	108	507	2180	2680	1060	6535	–
Marshall	131	410	2170	2545	1168	6425	5809
OFI-A94*	130	449	2340	2526	933	6377	–
Tetragold	196	423	2235	2476	919	6248	–
Southern Star	239	575	2116	2341	935	6205	–
WVPB-AR-R-3*	299	586	2146	2138	1011	6108	–
NC/FLX 1997 (LRCT)*	114	187	2009	2459	1335	6105	--
Turf 92*	70	151	1921	2684	1250	6075	–
TXR91-SR6EI*	93	465	2050	2108	1326	6041	–
TXR95-5*	92	139	1928	2587	1292	6038	–
FLX 1995 x 4N-LS*	29	325	1908	2682	1073	6016	–
TXR95-6*	129	439	2112	2418	595	5984	--
LE284*	82	563	2104	2433	757	5939	–
FLX 1997 G(4N)*	133	331	1864	2379	1152	5858	–
Passerel	215	211	1961	2208	1254	5848	–
Tetraploid VNS*	166	546	1821	2471	813	5817	–
TAM 90	109	360	2041	2343	940	5793	5908
Tetrablend 444	372	553	1690	2164	884	5663	–
TXR95-2*	106	311	2022	2001	1100	5540	–
Cetus	121	313	1926	1992	991	5342	–
Jackson	151	353	1999	1935	815	5257	5375
TXR96-1*	65	107	1641	2098	992	4903	--
TXR97-TI*	128	170	1757	1864	914	4829	–
Hercules	168	216	1318	1719	1083	4505	–
WVPB-AR-A-13*	162	272	1457	1673	926	4490	–
Titan	79	210	1373	1864	901	4428	–
Mean	143	426	2105	2403	1027	6111	--
LSD (0.10)	102	231	695	591	268	1306	--

Planted September 16, 1997. Fertilization: Preplant 500 lb 10-20-20/ac. Topdressed 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.

*Experimental line, seed presently not available to growers. These lines are not considered when reporting highest producing varieties.

^aEntry not tested over the last 5 years.

Table 2. Ryegrass Variety Forage Test at Beaumont, Texas for 1997-98 and 3-year mean yield.

Variety	Nov. 4	Dec. 10	Jan. 20	Feb. 13	Mar. 10	Mar. 24	Apr. 15	Season Total	3-Yr Mean
	-----dry matter (lbs/ac)-----								
OFI-PM1*	709	858	1505	1818	903	692	1241	7727	- ^a
GXS FL 1995*	622	883	1399	1686	1016	618	897	7122	-
Cetus	585	684	1505	1487	790	717	1293	7063	-
Tetrablend 444	647	896	1391	1487	919	717	1003	7060	-
WVPB-AR-F-11*	585	896	1293	1289	790	717	1320	6890	6379
Gulf	647	634	1463	1554	855	618	1003	6774	6033
Abundant	348	809	1103	1355	775	816	1478	6683	6863
FLX 1997 G (4N)*	423	809	1187	1289	839	816	1320	6683	-
FLX 1995 x 4N-LS*	348	734	1293	1421	823	791	1214	6625	-
Big Daddy	392	784	1166	1487	847	742	1188	6606	6688
Southern Star	547	871	1166	1322	903	717	1003	6530	-
Tetragold	597	709	1251	1454	774	668	1056	6509	-
OFI-A94*	647	610	1251	1289	839	643	1188	6466	-
TXR97-T1*	373	784	1124	1355	903	692	1188	6419	-
Ribeye	522	721	1421	1256	871	618	1003	6413	-
LE 284*	411	597	1251	1355	919	742	1056	6331	-
FLX 1997*	485	734	1209	1223	774	692	1161	6279	-
TXR91-SR6EI*	361	634	1103	1388	807	692	1214	6199	-
TXR95-6*	373	622	1209	1223	758	692	1241	6118	-
TAM 90	572	746	1251	1256	677	569	1029	6101	5775
WVPB-AR-R-3*	684	709	1145	1124	710	618	1109	6099	6082
Grazer	361	634	975	1554	936	593	1003	6056	5110
TXR95-2*	311	498	1018	1355	871	767	1214	6033	-
ME 94*	435	709	1018	1157	807	742	1161	6029	5978
Rio	610	684	1039	1223	790	692	977	6015	6251
Jackson	411	709	1145	1157	790	643	1135	5990	6201
Stampede	435	771	700	1322	919	717	1109	5974	-
WVPB-AR-93-101*	361	771	1187	1058	742	618	1109	5846	6023
Hercules	435	647	1378	1454	694	569	607	5784	3010
Surrey	585	473	700	1355	903	717	1003	5736	5856
WVPB-AR-A-13*	423	697	1103	1322	807	618	739	5708	5741

Marshall	423	672	1018	1058	710	593	1082	5556	5241
Titan	435	634	1103	1289	677	519	660	5318	-
TXR95-5*	149	504	922	1091	758	643	1214	5281	-
TXR96-1*	174	311	869	1124	790	717	1267	5253	-
Turf 92	361	460	848	959	710	618	1267	5223	-
NC/FLX 1997 (LRCT) (2N)*	249	522	869	1091	694	643	1135	5203	-
Passerel	485	597	891	859	565	495	897	4789	-
LSD (0.10)	300	219	266	219	137	107	202	--	
Mean	460	690	1150	1308	812	675	1107	6202	

Experiment planted on October 2, 1997. Fertilizer application: Preplant 50 lbs/a N and 50 lbs/a P₂O₅. Test was topdressed with N at 60 lbs/a on November 5 and January 20. Seeding rate was 35 lbs/a. The test had three replications.

*Experimental line, seed presently not available to growers. These lines are not considered when reporting highest producing varieties.

^aEntry not tested over the last 3 years.