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Performance of Annual Italian Ryegrass Trials in Bryan, Texas, 1990-93

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Summary

This paper presents information on forage yields of annual Italian ryegrass (*Lolium multiflorum* Lam.) varieties grown at Bryan, Texas, during three winters from 1990-93. Plots were seeded in late September or early October and clipped three or four times between December and April. Yields averaged between 7,673 and 9,437 lb/acre. Among varieties, total yields differed significantly during 1990-91 and 1991-92 but not in 1992-93. Averaged over 3 years, the highest yielding varieties are 'Beefbuilder' and 'Tetragold', which produced 20 and 12%, respectively, more than 'Gulf'.

Introduction

Annual ryegrass is commonly used as winter pasture throughout much of central and eastern Texas. It has good quality, and it is winterhardy and easily established. Yields, typically ranging from 5,000 to 10,000 lb/acre, depend on moisture and fertility. Many commercial varieties of annual ryegrass are available to producers. Field trials at Bryan, Texas, were carried out to determine the yield distribution and relative performance of several varieties under central Texas climatic conditions.

Procedure

Annual Italian ryegrass varieties were evaluated for forage production at Bryan for 3 years (1990-91, 1991-92, 1992-93). Varieties varied from year to year so that 3 years of data are not available for all varieties. Trials were on a Lufkin fine sandy loam soil of pH 6.8. Plots were seeded at a rate of 25 lb/acre in late September or October into a previously fallowed prepared seedbed. Plots were 5 by 20 ft with a 7-in. row spacing and arranged in a randomized complete block design of two to four replicates. Fertilizer rates varied somewhat from year to year (Tables 1 to 3). Plots were clipped to a height of 4 in. Dry matter yields were calculated from the harvested weight of a 3- by 17-ft strip. A subsample was dried at 140 °F for 48 hr to estimate dry matter percentage. Analyses of variance within years were carried out, and the LSD test at $P < 0.05$ was used to detect treatment differences.

Keywords: *Lolium multiflorum* / winter pasture.

Results and Discussion

Long-term average monthly precipitation at Bryan, Texas, of the October to April period ranges from 2.4 to 4.4 in. Precipitation during the trials was near normal except for January and December of 1991, when rainfall was 15 and 11 in., respectively. During 1990-91, forage production was evenly distributed; about a third was produced at each clipping and averaged 7,673 lb/acre for the year (Table 1). There was a large range in total yields; the best variety produced more than 40% more than the least. The highest yielding varieties for total yield were Beefbuilder, Tetragold, TS Exp 1, and 'HHH Rustmaster' (Table 1).

In the 1991-92 year, fall yields were low for all varieties because of lower than average precipitation in October and November (Table 2). Total yields in 1991-92 averaged 8,401 lb/acre and showed a 17% difference between the highest and lowest yielding variety. 'Southern Star', Beefbuilder, HHH Rustmaster, Tetragold, and Gulf were the most productive varieties (Table 2).

Table 1. Annual Italian ryegrass forage variety yields at Bryan, Texas, 1990-91.

Variety	Harvest date			Total
	18 Dec.	26 Feb.	24 April	
	lb/acre oven-dried forage			
Beefbuilder	3396	3269	2863	9528
Tetragold	2553	2891	3397	8931
TS Exp 1	2604	2723	2514	7842
HHH Rustmaster	3077	2059	2689	7825
Marshall	2253	3230	2279	7762
TAM 90	2212	2814	2021	7047
Gulf	2526	1799	2426	6751
Alamo	2528	1892	2019	6439
Mean	2644	2591	2526	7673
CV (%)	24	31	24	16
LSD (0.05)	1112	1443	1071	2941

Seeded: 2 Oct. 1990.
Fertilizer: 72 lb/acre N, P_2O_5, and K_2O on 27 Sept. 1990; 68 lb/acre N on 3 Mar. 1991.

During 1992-93, total yields averaged 9,437 lb/acre (Table 3). Total yield between the highest and lowest yielding varieties differed less than 10% and showed no significant differences ($P < 0.05$) among varieties.

The highest yielding varieties over the 3 years were Beefbuilder and Tetragold, which produced an average of 20 and 12%, respectively, more forage than did Gulf. The 3-year average total yield was 8,504 lb/acre. This is about 2,000 lb/acre higher than that of a small-grain trial carried out during the same time at the same location and under similar levels of fertility. First-harvest yields, which represent growth occurring in the November-January period, exceeded small-grain production 2 out of 3 years.

Table 2. Annual Italian ryegrass forage variety yields at Bryan, Texas, 1991-92.

Variety	Harvest date				Total
	9 Dec.	20 Feb.	20 Mar.	29 Apr.	
	lb/acre oven-dried forage				
Southern Star	1700	2961	2133	2795	9589
Beefbuilder	1141	2706	1982	3161	8989
Tetragold	1045	2780	1668	3363	8855
HHH Rustmaster	945	2768	1966	2558	8240
Gulf	1118	2748	1602	2719	8187
Jackson	1078	1928	2300	2558	7864
Alamo	749	2240	1801	3036	7826
TAM 90	935	2336	1894	2496	7660
Mean	1089	2558	1918	2835	8401
CV (%)	19	15	27	14	9
LSD (0.05)	490	910	1223	938	1706

Seeded: 27 Sept. 1991.
Fertilizer: 60 lb/acre N, 30 lb/acre P_2O_5, and 30 lb/acre K_2O on 30 Sept. 1991; 75 lb/acre N on 27 Mar. 1992.

Table 3. Annual Italian ryegrass forage variety yields at Bryan, Texas, 1992-93.

Variety	Harvest date				Total
	26 Jan.	18 Feb.	6 April	12 May	
	lb/acre oven-dried forage				
Jackson	3080	1151	3271	2443	9945
Beefbuilder	3556	1009	2738	2511	9813
Gulf	3355	849	3145	2204	9553
Alamo	3135	1093	2673	2524	9425
TAM 90	2884	1043	3351	2105	9383
Marshall	3076	1162	2844	2227	9308
Southern Star	2965	991	2671	2678	9305
HHH Rustmaster	2891	896	3182	2324	9292
Tetragold	2853	1301	2793	2276	9223
Surrey	3058	1049	2756	2257	9120
Mean	3085	2558	2942	2355	9437
CV (%)	12	15	16	18	9
LSD (0.05)	537	910	671	NS	NS

Seeded: 7 Oct. 1992.
Fertilizer: 75 lb/acre N, 75 lb/acre P_2O_5, and 75 lb/acre K_2O on 6 Oct. 1992; 75 lb/acre N, 75 lb/acre P_2O_5, and 75 lb/acre K_2O on 26 Jan. 1992; 75 lb/acre N on 15 Apr. 1993.