

# 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<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O 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.