

ANNUAL RYEGRASS FORAGE YIELDS OF COMMERCIALY AVAILABLE VARIETIES AT OVERTON FOR 2002-2003 AND THREE-YEAR MEANS

L. R. Nelson, J. Crowder and F. T. Turner

Texas A&M University Agricultural Research & Extension Center at Overton
Texas A&M University Agricultural Research & Extension Center at Beaumont

Summary and Application

Forage yields are presented for commercial varieties of annual ryegrass (*Lolium multiflorum*) grown at Overton, Texas for the 2002-2003 season and for 3-year means. Data indicated that over the 3-year period, there were about 1000 pounds yield differences between premium varieties at Overton. Winterkill was not a factor at Overton in 2003 and we did not observe differences for freeze damage between varieties. Crown rust ratings are presented from variety trials at Beaumont, Texas. In variety evaluation studies, multiple years of data are beneficial to indicate which varieties will produce higher forage yields.

Introduction

Annual ryegrass is a productive high-quality cool-season forage used by livestock for winter and spring grazing in East Texas (Fig. 1). Varieties vary in total forage yield, seasonal distribution, winter hardiness, and disease resistance. Yield potential of varieties also varies depending on location or region of Texas in which they are grown. These studies were conducted over several years at the TAMU Agricultural Research and Extension Center at Overton to compare varieties for forage yield potential, cold tolerance, and crown rust resistance under east Texas soils and climatic conditions. Overton, located in northeast Texas, has well-drained, sandy soils with daily low temperatures below freezing

occurring about 30 to 40 times per year.



Figure 1. TAM 90 ryegrass and Bates rye pasture at Overton, Texas in 1999.

Methods and Materials

All available ryegrass varieties and some experimental lines were evaluated during the past three years. In this report, data from commercial varieties and not experimental lines are shown. Soil type at Overton was a Darco loamy sand. Fertilizer rates and application dates are noted in Table 1. Thirty pounds of seed per acre were planted into a prepared seedbed at 1/4-inch depth. The normal planting dates were mid-September; however, in 2002 we planted on 26 September. Seed were planted in 7 rows that were spaced 6-inches apart. Plot size was 4 x 12 ft with four replications. Plots were harvested with a Hege plot harvester at a cutting height of 2 inches at five harvest dates. Entry mean separation was by LSD at the 0.10 level. Ryegrass was approximately 8 inches tall at first

harvest.

Results and Discussion

Environmental conditions were favorable for good ryegrass forage yield at Overton in 2002-2003. Rainfall in inches by months was Sept., 3.8; Oct., 3.2; Nov., 3.0; Dec., 10.3; Jan., 0.7; Feb., 7.7; Mar., 1.2; Apr., 1.7; and no rain in early May. Fall rainfall was below normal, but adequate for average production. Rainfall in March, April, and May was below average and reduced late season yields, especially in May. We normally would have had a large harvest in May; therefore late maturing varieties were penalized from the standpoint they were not able to yield their genetic potential. The coldest temperature was 21°F on 24 January 2003. No freeze damage was observed in this trial.

Yield data are presented in Table 1 for commercial varieties. We had average stands and average tillering during the fall period; therefore some plots had less than a perfect stand, which reduced early fall production. In the first clipping on 16 December, all entries produced low forage yields. Best yields were produced by 'Ed', 'Passeral Plus', 'Jackson', and 'TAM 90' followed closely by several other varieties. The second harvest on 18 February also produced relatively low yields. Yields of the third harvest on 17 March were much improved.

The range in yield was between 1248 and 1969 lb/ac, with 'Beefbuilder III' producing the higher yield. The 14 April harvest (4th) had the highest mean yields for all harvests. Most varieties yielded over 1 ton dry matter during this 1-month period. Higher yielding entries were 'Marshall', Beefbuilder III, 'Barextra', 'Barberia', and 'Jumbo', closely followed by other varieties. The last harvest on 12 May was well below normal forage yields for ryegrass for this period. This

was due to dry growing conditions in April and May. As in earlier harvests, Beefbuilder III produced the higher yield. For the total season forage yield, Beefbuilder III and Jumbo had highest yields and they were followed by 'Brigadier', Marshall, Ed, and 'TAM 90'. The total season yields were below average due to the low fall and winter production as well as the low May production. The 3-year means indicate that most of the better varieties had forage yields between 6000 and 7000 lb dry matter/ac. Therefore, comparisons between varieties should be by utilizing the 3-year means, if they are available. Three-year means are more reliable in judging the true forage yield potential of these varieties. Jumbo, 'Prine', and Ed had the highest numerical 3-year forage yield means; however, several other varieties were not significantly lower yielding.

Crown rust was observed at Overton in 2003; however, the disease was not present until late April and ratings were not uniform. Crown rust ratings were recorded on a sister trial at Beaumont (stands were too variable to obtain forage yield data) and indicated susceptibility of some entries. Varieties which demonstrated susceptibility were Marshall, 'HyEnergy', and 'Aubade'.

Differences in yields between varieties of less than the LSD (at bottom of each table) 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.

Conclusion

There are several good varieties of annual ryegrass available to growers in Texas. When selecting the variety for your ranch, variety trial data should be studied to determine which variety

to select. Because there are a large number of good and tested varieties available, no new and untested line should be planted. New and untested varieties are placed in the marketplace

each year. These varieties should be avoided until they have been tested for winter hardiness, crown rust resistance, and for forage yield for two or three years.

Table 1. Ryegrass forage variety test at Overton, Texas for 2002-2003.

| Variety | Harvest | Harvest | Harvest | Harvest | Harvest | Total DMY | 3-Year Mean | Crown Rust Rating Beaumont | |
|--------------------|---|--------------|--------------|--------------|-------------|--------------|----------------|-------------------------------------|-----|
| | 1 Dec. 16 | 2 Feb. 18 | 3 Mar. 17 | 4 Apr. 14 | 5 May 12 | | | | |
| | -----pounds of dry matter per acre----- | | | | | | | | 0-9 |
| Beefbuilder III | 666 | 749 | 1969 | 2642 | 1220 | 7246 | -- | 0.0 | |
| Jumbo | 493 | 516 | 1967 | 2479 | 1046 | 6501 | 7211 | 0.0 | |
| Brigadier | 600 | 688 | 1722 | 2358 | 876 | 6244 | 6678 | 0.3 | |
| Marshall | 523 | 514 | 1725 | 2823 | 570 | 6154 | 6885 | 5.0 | |
| Ed | 901 | 824 | 1760 | 2026 | 636 | 6147 | 7057 | 1.3 | |
| TAM 90 | 781 | 829 | 1785 | 1920 | 813 | 6128 | 6361 | 2.3 | |
| Passeral Plus | 799 | 624 | 1668 | 2488 | 522 | 6101 | 6283 | 3.0 | |
| HyEnergy | 397 | 631 | 1882 | 2500 | 658 | 6068 | -- | 4.3 | |
| Prine | 382 | 499 | 1670 | 2499 | 992 | 6042 | 7166 | 0.6 | |
| Lonestar | 663 | 832 | 1886 | 1863 | 639 | 5883 | -- | 0.6 | |
| Ribeye | 661 | 863 | 1892 | 1832 | 622 | 5870 | 6373 | 2.6 | |
| WD-40 | 576 | 649 | 1726 | 2393 | 499 | 5842 | 6674 | 2.6 | |
| Jackson | 881 | 727 | 1676 | 1894 | 574 | 5753 | 6520 | 1.6 | |
| Supergraze* | 599 | 376 | 2265 | 1962 | 225 | 5426 | -- | 3.0 | |
| Gulf | 579 | 692 | 1636 | 1825 | 639 | 5372 | 6375 | 1.6 | |
| BAREXTRA | 354 | 238 | 1248 | 2677 | 619 | 5135 | -- | 0.3 | |
| Aubade | 390 | 442 | 1462 | 2212 | 553 | 5059 | -- | 4.3 | |
| BARBERIA | 233 | 325 | 1271 | 2426 | 88 | 4343 | -- | 0.3 | |
| Grand Mean | 582 | 612 | 1733 | 2267 | 655 | 5845 | 6689 | 2.1 | |
| CV | 60 | 39 | 14 | 15 | 70 | 15 | -- | 67 | |
| LSD (10% level) | 287 | 227 | 222 | 305 | 469 | 794 | -- | 1.5 | |

*Blend of rye and ryegrass.

Planted on 26 September 2002. Fertilization: Preplant 91 lb/ac of N, P₂O₅ and K₂O 9 September 2002. Topdressed with 40 lb N on 12 November, 33 lb N/ac on 21 January, 40 lb/ac of N, P₂O₅ and K₂O on 6 March and 40 lb N/ac on 15 April 2003.