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## Small Grain and Ryegrass Forage Variety Tests, 1983-84

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### Summary

Small grain winter annuals are often grazed out in Texas to overwinter cattle. Information on which varieties of oats, wheat, rye, and ryegrass procedure the highest forage yields is valuable for cattlemen. To simulate grazing, tests were clipped several times to compare varieties for forage yield at various times during the growing season and for total yield. Separate tests were conducted for oats, rye, ryegrass, and wheat. It is important to consider forage distribution throughout the growing season and not only total forage yield. Early fall and winter forage production may be of more value to a forage program than forage produced in April or May.

### Introduction

These trials were conducted to determine which varieties produce optimal forage yields in East Texas. A second objective was to compare experimental and newly released lines with recommended varieties to determine their adaptation to East Texas growing conditions.

### Procedure

Rye, wheat, ryegrass, and oats were planted in separate tests on September 12, 1983 at Overton, Texas. The ryegrass variety test was planted on October 11 at a different location. Seed was replanted into six-row plots spaced 8 inches apart, 10 feet in length. The four center rows were harvested at a height of about 2 inches with a flail-type harvester. Fertilizer application consisted of a preplant application at a rate of 24-96-96 (N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O) lb/A and a split nitrogen application of 100 lb on September 26, 1983 and 60 lb on February 26, 1984 for a total N application of 184 lb/A. Individual small grain forage tests were harvested when there was sufficient forage to cut. Normally, this would be when the forage was from 8 to 10 inches tall. No serious disease or insect pests were observed in these tests.

Limited moisture in September reduced ryegrass stands. Wheat, oat, and rye emergence was good and stands persisted. Rainfall amounts in inches by months were: September - 1.2; October - 2.8; November - 3.8; December - 4.3; January - 1.8; February - 7.2; March - 2.9; April - 1.6; and May - 2.7. A temperature of 4°F was recorded on December 26 and 10°F was recorded on January 23. During this cold period, the soil froze to a depth of about 10 inches which was very unusual.

### Results and Discussion

Forage yield data are presented in Tables 1-4. Highest

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mean yields in 1983-84 were produced by ryegrass followed by wheat, rye, and oats. All oat varieties were

**TABLE 1. RYEGRASS FORAGE VARIETY TEST (A) PLANTED EARLY (SEPTEMBER 12) AT OVERTON, TEXAS 1983-84**

| Variety     | Harvest Dates          |         |                 |         | Total Yield |
|-------------|------------------------|---------|-----------------|---------|-------------|
|             | Nov. 17                | Dec. 13 | Mar. 16         | Apr. 27 |             |
|             | Pounds Dry Matter/Acre |         |                 |         |             |
| Marshall    | 2,374                  | 945     | 434             | 2,093   | 5,847       |
| Florida 80  | 2,093                  | 868     | 485             | 2,221   | 5,668       |
| Gulf        | 2,349                  | 1,124   | 435             | 1,685   | 5,592       |
| TX-R-80-4   | 1,405                  | 1,021   | 562             | 2,196   | 5,184       |
| Exp.        |                        |         |                 |         |             |
| Tetrand     |                        |         |                 |         |             |
| 444         | 1,659                  | 1,021   | 562             | 1,915   | 5,158       |
| Shannon     | 1,889                  | 945     | 485             | 1,736   | 5,055       |
| TNT         | 1,940                  | 1,072   | 434             | 1,481   | 4,928       |
| Montgomery  |                        |         |                 |         |             |
| Exp.        | 1,225                  | 843     | 664             | 2,195   | 4,927       |
| TX-R-80-T   |                        |         |                 |         |             |
| Exp.        | 1,251                  | 946     | 511             | 2,068   | 4,826       |
| TERLI       | 1,634                  | 1,098   | 588             | 1,328   | 4,647       |
| Victoria    |                        |         |                 |         |             |
| (perennial) | 638                    | 639     | 357             | 2,579   | 4,212       |
| Common      | 817                    | 766     | 511             | 1,966   | 4,060       |
| Mean        | 1,606                  | 945     | 502             | 1,955   | 5,009       |
| LSD         |                        |         |                 |         |             |
| (10% level) | 660                    | 217     | NS <sup>1</sup> | 589     | 771         |
| CV          | 34                     | 19      | 29              | 25      | 13          |

**RYEGRASS FORAGE VARIETY TEST (B) PLANTED LATE (OCTOBER 11) AT OVERTON, TEXAS**

| Variety         | Harvest Dates          |                 |         | Yield           |
|-----------------|------------------------|-----------------|---------|-----------------|
|                 | Dec. 12                | Mar. 16         | Apr. 17 |                 |
|                 | Pounds Dry Matter/Acre |                 |         |                 |
| Tetrand 444     | 1,608                  | 792             | 1,608   | 4,099           |
| Marshall        | 1,404                  | 919             | 1,583   | 3,096           |
| TNT             | 1,506                  | 919             | 1,430   | 3,855           |
| TX-R-80-T       | 1,225                  | 919             | 1,710   | 3,855           |
| Gulf            | 1,558                  | 816             | 1,430   | 3,803           |
| Shannon         | 1,609                  | 741             | 1,430   | 3,779           |
| Gulf            | 1,601                  | 766             | 1,353   | 3,728           |
| TX-R-80-4       | 1,302                  | 1,047           | 1,353   | 3,702           |
| Montgomery Exp. | 1,353                  | 766             | 1,353   | 3,651           |
| Florida 80      | 1,405                  | 1,098           | 1,075   | 3,577           |
| Common          | 1,430                  | 868             | 1,252   | 3,550           |
| TERLI           | 1,149                  | 715             | 1,251   | 3,115           |
| Mean            | 1,430                  | 864             | 1,417   | 3,711           |
| LSD (10% level) | 261                    | NS <sup>1</sup> | 289     | NS <sup>1</sup> |
| CV              | 15                     | 44              | 1.7     | 13              |

Seeding rate = 48 lb/A.

Fertilizer application: Preplant 400 lb/A of 6-24-24 (N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O).  
Topdressed (urea) 100 lb N/A on September 26 and 60 lb N/A on February 26, 1984. Total N = 184 lb/A.

<sup>1</sup>NS = no significant differences in yield between varieties this harvest date.

Severe winter-kill occurred on most varieties during December. This resulted in uneven winter-kill within varieties and between varieties and increased the variability of the study.

The stands on the early planting date (September 12) were somewhat erratic due to dry conditions and the test was replanted, however, the data are presented for both tests.

**TABLE 2. WHEAT VARIETY FORAGE TEST AT OVERTON, TEXAS 1983-84**

| Variety                    | Harvest Dates             |        |                |         |        | Total Yield |
|----------------------------|---------------------------|--------|----------------|---------|--------|-------------|
|                            | Nov. 10                   | Dec. 9 | Feb. 23        | Mar. 16 | Apr. 9 |             |
|                            | Pounds of Dry Matter/Acre |        |                |         |        |             |
| Florida 302                | 1,277                     | 1,047  | 536            | 2,145   | 332    | 5,337       |
| Grazerblend II (Triticale) | 1,098                     | 894    | 588            | 1,864   | 613    | 5,055       |
| McNair 1003                | 1,251                     | 945    | 919            | 1,225   | 204    | 4,545       |
| HW-3022 (Rohm & Haas)      | 1,634                     | 894    | 639            | 817     | 358    | 4,340       |
| TAM106                     | 1,124                     | 817    | 818            | 1,200   | 255    | 4,214       |
| Northrup King 812          | 1,251                     | 919    | 817            | 996     | 128    | 4,110       |
| HW-3006 (Rohm & Haas)      | 1,532                     | 919    | 613            | 766     | 255    | 4,084       |
| Rosen                      | 1,123                     | 894    | 919            | 970     | 179    | 4,084       |
| Coker 916                  | 919                       | 868    | 817            | 1,200   | 230    | 4,034       |
| Coker 68-15                | 1,328                     | 945    | 562            | 919     | 281    | 4,034       |
| Southern Belle             | 843                       | 843    | 843            | 1,250   | 230    | 4,008       |
| Bradford                   | 1,124                     | 894    | 613            | 919     | 358    | 3,907       |
| Coker 762                  | 868                       | 843    | 894            | 1,098   | 204    | 3,906       |
| TX-73-009                  | 996                       | 843    | 766            | 817     | 179    | 3,803       |
| Terral-81-17               | 1,328                     | 817    | 639            | 817     | 153    | 3,753       |
| Texred                     | 1,021                     | 817    | 690            | 1,123   | 162    | 3,753       |
| Delta Queen                | 996                       | 868    | 868            | 664     | 255    | 3,651       |
| TX-75-213                  | 1,098                     | 894    | 664            | 741     | 255    | 3,651       |
| Mit                        | 919                       | 868    | 664            | 843     | 204    | 3,498       |
| Florida 301 <sup>1</sup>   | 1,251                     | 843    | 0 <sup>1</sup> | 0       | 128    | 2,221       |
| Mean                       | 1,149                     | 883    | 693            | 1,029   | 245    | 3,999       |
| LSD (10% level)            | 314                       | 125    | 138            | 762     | 104    | 783         |
| CV                         | 23                        | 12     | 16             | 62      | 35     | 16          |

Planted on September 12, 1983. Seeding rate = 120 lb/A.

Fertilizer application: Preplant 400 lb/A of 6024024 (N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O).

Topdressed (urea) 100 lb N/A on September 26 and 60 lb N/A on February 26, 1984. Total N = 184 lb/A.

<sup>1</sup>Florida 301 was severely winter-killed in December.

**TABLE 3. RYE FORAGE VARIETY TEST AT OVERTON, TEXAS 1983-84**

| Variety              | Harvest Dates |        |         |         |        | Total Yield |
|----------------------|---------------|--------|---------|---------|--------|-------------|
|                      | Nov. 10       | Dec. 8 | Feb. 21 | Mar. 19 | Apr. 9 |             |
| Wintergrazer 70      | 1,405         | 817    | 1,098   | 1,149   | 178    | 4,647       |
| Noble Foundation-142 | 1,251         | 893    | 970     | 1,047   | 281    | 4,443       |
| Grazerblend II       | 1,302         | 791    | 485     | 1,200   | 636    | 4,415       |
| Noble Foundation-214 | 1,277         | 868    | 1,047   | 1,072   | 127    | 4,391       |
| Bonel                | 1,174         | 842    | 996     | 1,021   | 154    | 4,188       |
| Noble Foundation-91  | 1,174         | 766    | 996     | 1,098   | 129    | 4,163       |
| GI-85                | 1,200         | 893    | 1,021   | 715     | 127    | 3,957       |
| Curley Grazer 2000   | 1,353         | 817    | 970     | 511     | 178    | 3,830       |
| Maton                | 817           | 817    | 1,072   | 944     | 76     | 3,727       |
| Vitagrazer           | 1,072         | 842    | 1,430   | 281     | 25     | 3,651       |
| FBISRR Florida Exp.  | 1,455         | 562    | 178     | 306     | 154    | 2,656       |
| Elbon                | 102           | 76     | 128     | 0       | 51     | 358         |
| Mean                 | 1,132         | 749    | 866     | 779     | 177    | 3,702       |
| LSD (10% level)      | 286           | 152    | 253     | 219     | 150    | 654         |
| CV                   | 21            | 17     | 24      | 23      | 70     | 14          |

Planted on September 12, 1983. Seeding rate = 120 lb/A.

Fertilizer application: Preplant 400 lb/A of 6-24-24 (N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O).

Topdressed (urea) 100 lb N/A on September 26 and 60 lb/A on February 22. Total N = 184 lb/A.

killed by winter freeze damage in December and were not harvested thereafter. Ryegrass was severely damaged, however all varieties did recover and forage was harvested in March. The September 12 planting of ryegrass was superior to the October planting even though the late planting had better stands. This was due to the fall growth and November 17 harvest. The cold

weather in December and January greatly reduced winter forage production of ryegrass and favored varieties with good winterhardness (such as Marshall).

Forage production of wheat varieties was fairly stable through the season even in December. Some interaction in seasonal forage production and varieties can be observed (Table 2). Grazerblend II triticale produced high

**TABLE 4. OAT FORAGE VARIETY TEST AT OVERTON, TEXAS 1983-84**

| Variety                | Harvest Dates          |         | Total Yield |
|------------------------|------------------------|---------|-------------|
|                        | Nov. 11                | Dec. 12 |             |
|                        | Pounds Dry Matter/Acre |         |             |
| Coker 234              | 2,017                  | 945     | 2,962       |
| Four-twenty-two        | 2,067                  | 894     | 2,961       |
| TX 81C707 <sup>1</sup> | 2,017                  | 919     | 2,936       |
| Mesquite               | 1,915                  | 945     | 2,860       |
| TX 82c <sup>1</sup>    | 1,966                  | 868     | 2,834       |
| Big Mac                | 1,915                  | 894     | 2,809       |
| TX 82663171            | 1,976                  | 792     | 2,767       |
| Walken                 | 1,787                  | 970     | 2,757       |
| Harpool 833            | 1,889                  | 843     | 2,732       |
| TX 81C705 <sup>1</sup> | 1,864                  | 868     | 2,732       |
| Coker 227              | 1,736                  | 919     | 2,655       |
| Fal-501                | 1,812                  | 792     | 2,604       |
| Fla-502                | 1,588                  | 1,021   | 2,579       |
| Bob                    | 1,506                  | 817     | 2,324       |
| Mean                   | 1,859                  | 892     | 2,751       |
| LSD (10% level)        | 299                    | 147     | 336         |
| CV                     | 13                     | 14      | 10          |

Planted on September 12, 1983. Seeding rate = 120 lb/A.

Fertilizer application: Preplant 400 lb/A of 6-24-24 (N, P<sub>2</sub> O<sub>5</sub> and K<sub>2</sub>O). Topdressed (urea) 100 lb N/A on September 26 and 60 lb N/A on February 26, 1984. Total N = 184 lb/A.

\*All varieties winter-killed in late December due to extreme cold.

<sup>1</sup>Experimental variety, seed is not available.

yields compared to most wheat varieties. Rye forage production was somewhat lower than normally expected. Seed germination of the variety Elbon was very bad and resulted in its low forage production.

The oat yields were very high for the November harvest date, however the winterfreeze damage killed all varieties in late December 1984.

When making comparisons between varieties within a table, difference between varieties of less than the LSD are probably due to chance only and should not be considered as important. Furthermore, data from 1 year may be misleading because of unusual weather conditions. Therefore, these data should only be used to give an indication of varietal differences. Recommendations should be made using at least 3 years of data.