

Annual Ryegrass Forage Yields of Commercially Available Varieties at Overton for 2000-2001 and Three-Year Means

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Summary

Forage yields are presented for commercial varieties of annual ryegrass (*Lolium multiflorum*) grown at Overton, Texas for the 2000-2001 season and for 3-year means. Data indicate that over the 3-year period, there is not much difference between premium varieties at Overton. Winterkill has not been a factor for several years and therefore more winter hardy varieties have not had an advantage. In variety evaluation studies, multiple years of data are required to indicate which varieties will produce higher forage yields.

Introduction

Annual ryegrass is a productive high-quality, cool-season forage that is used by livestock for winter and spring grazing in East Texas. Varieties vary in total forage yields, 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 temperature below freezing occurring about 30 to 40 times per year.

Procedure

All available ryegrass varieties and some experimental lines were evaluated during the past three years. In this report, data from commercial varieties and non-experimental lines will be shown. Soil type at Overton was on Darco loamy sand. Fertilizer rates 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 2000, we planted on 11 October. 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 four harvest dates. Entry mean separation was by LSD at the 0.10 level. Ryegrass was approximately 7-inches tall at first harvest.

Results and Discussion

Environmental conditions were abnormal in 2000-2001. A very wet November and cold mean temperatures from November until February along with cloudy weather and the late planting date, resulted in little forage production until March. Almost no moisture during April caused all ryegrass varieties to produce seed heads and mature about 3 weeks earlier than normal. These environmental conditions resulted in below average seasonal yields. Rainfall in inches by month was

Sept., 0.8; Oct., 2.6; Nov., 11.7; Dec., 5.0; Jan., 5.3; Feb., 5.8; Mar., 6.7; Apr., 0.4; and May, 8.7. The colder temperature days were 21EF on Dec. 12 and 22 and 17EF on Jan. 3, 2001. Freeze damage occurred on an adjacent oat test but no damage was observed on any ryegrass varieties.

We had a good stand and high tillering during the fall dry period and when adequate rains occurred, good forage production occurred. In the first clipping on 26 February, most varieties produced low yields; however, King and Jumbo produced good yields (Table 1). Yields in the second harvest were higher with TAM 90 producing the highest yield. Yields in the 3rd and 4th harvests were very high indicating that with adequate precipitation, high spring forage yields resulted. In the 12 April harvest, Prine and Marshall topped the test but they were closely followed by other varieties. In the 21 May harvest, very high yields were produced by most varieties. Jumbo, a tetraploid, produced the highest yield; however, it was not significantly higher than several other entries. No crown rust was observed in Texas in 2001 and therefore yields were not affected by this fungal disease. Three-year means are more reliable in judging the true forage yielding potential of these varieties. Note that there are not many differences between varieties. Natchez and Surrey II had higher yields over the three years; however, TAM 90, Stampede, Abundant, and Jumbo were really not significantly lower yielding. If winterkilling had occurred, Marshall and TAM 90 may have had some advantage as judged by previous year=s freeze damage ratings.

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 experiment should be useful in selecting ryegrass varieties best adapted to northeast Texas. Winter hardiness is extremely valuable in those years when winterkill occurs. In north Texas, the small additional seed cost of more cold tolerant varieties such as Marshall, TAM 90, Jackson, or Rio should be well worth their extra forage yielding potential. Winter hardiness of recently released varieties such as Fantastic, Stampede, Surrey II, and Natchez have not been well tested because of recent warm winters.

Table 1. Ryegrass forage test of commercially available varieties at Overton, Texas for 2000-2001 and 3- year mean yields

Variety	Harvest 1 Feb 26	Harvest 2 Mar 16	Harvest 3 Apr 12	Harvest 4 May 21	Total Season Yield	3-Year Mean
	-----pounds of dry matter per acre----- -----					
Prine	820	1132	1836	2703	6491	+-
Natchez	984	1241	1718	2460	6403	7775
Jumbo	1128	760	1580	2906	6374	7317
King	1430	973	1718	2215	6336	+-
Abundant	744	782	1729	2688	5944	7457
Fantastic	898	1062	1465	2434	5859	+-
Graz-N-Gro	769	1187	1594	2270	5820	+-
Marshall	467	1078	1877	2336	5758	7265
Brigadier	850	906	1651	2336	5743	+-
Ed	868	960	1402	2352	5581	+-
Big Daddy	846	800	1694	2234	5574	7285
Jackson	593	993	1677	2309	5572	7113
Surrey II	741	850	1633	2259	5482	7615
Passerel Plus	760	730	1423	2567	5479	7104
Florlina	845	858	1498	2140	5340	+-
WD-40	968	915	1622	1809	5314	+-
TAM 90	494	1486	1685	1587	5252	7476
Gulf	861	1162	1497	1706	5225	6987
Ribeye	824	842	1638	1859	5163	7240
Rio	610	939	1559	2033	5142	6839
Stampede	527	769	1338	2240	4874	7489
Grand Mean	741	1053	1704	2185	5682	
LSD	306	297	359	588	1011	
CV	35	24	18	23	15	

Planted October 11, 2000. Fertilization: Preplant 400 lb 10-26-26/ac. Topdressed with 40 lb N/ac on November 22, 2000, 40 lb N/ac on January 29, 2001, 40 lb N/ac on March 5, 2001, and 40 lb N/ac on April 4, 2001.

+Entry not tested over last 3 years.