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Department of Agronomy and Soils Departmental Series No. 170
Alabama Agricultural Experiment Station Auburn University
Lowell T. Frobish, Director Auburn University
August 1993

PERFORMANCE OF RYEGRASS VARIETIES IN ALABAMA, 1992-93

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The Alabama Ryegrass Variety Evaluation is a continuing study of available varieties and breeding lines from private companies and state agricultural experiment stations. In Alabama, experiments are planted annually in northern, central, and southern locations to evaluate the varieties and lines under the different environmental conditions of the state. Nationwide, entries in each experiment are determined by the companies or institutes which control each variety, or line, not by experiment station personnel. However, the experiments are conducted by experiment station personnel and the results are presented in a fair and unbiased manner.

EXPERIMENTAL PROCEDURES AND DISCUSSION

Ryegrass entries were seeded at a 20-pound-per-acre rate in rows 7 inches apart, using plots 5 x 20 feet with four replications. Good stands were obtained at the following locations: Sand Mountain Substation, Crossville; E.V. Smith Research Center, Tallassee; and Gulf Coast Substation, Fairhope.

The experiments were fertilized with phosphorus and potassium according to Auburn University soil test recommendations. At planting, nitrogen was applied at the rate of 50 pounds per acre, and an additional 50 pounds of N was applied per acre after each cutting. A 32- or 49-inch swath of each plot was harvested to a cutting height of

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1 1/2 to 2 inches with a flail harvester each time the ryegrass reached 6-10 inches tall. A herbage sample of approximately 1 pound was taken from each plot at each harvest for determining forage dry matter percentage.

In 1992, the tests were planted October 7 and October 6 at Tallassee and Fairhope, respectively. The experiment at Crossville was planted September 30. Growing conditions were normal for Crossville and Fairhope. Excess rainfall in November and December reduced fall growth at Tallassee.

Due to dry soil conditions in fall of 1990, experiments at Fairhope and Tallassee were not planted until October 30 and 25, respectively. The experiment at Crossville was planted September 20, 1990. In 1991, the tests were planted on September 20, October 1, and October 10, at Crossville, Tallassee, and Fairhope, respectively. Above average temperatures recorded at all locations in 1991-92 resulted in good fall and winter growth. There was a severe shortage of moisture in late April and all of May resulting in very low late spring production.

Strategies to meet seasonal forage needs are an important consideration for livestock producers. Tables 1-3 provide yield data by harvest for 1992-93 at a given location, while tables 4-6 show one-, two-, and three-year total yields by location. Dry matter forage is recorded for seasonal and total yields by locations in tables 7-9. The three seasonal periods are: fall- forage produced through February; early spring-March and early April production; and late spring-production after April 20. A 3-year average provides a more dependable comparison of ryegrass varieties than do single-year results.

ACKNOWLEDGMENTS

Appreciation is expressed to Mien-Huei Tzeng, Research Data Analysis, for the data processing of this report. Also acknowledged are the contributions of J.T. Eason and M.E. Ruf, Sand Mountain Substation; E.L. Carden, N.R. McDaniel, and M.D. Pegues, Gulf Coast Substation; and S.P. Nightengale, E.V. Smith Research Center, for growing and harvesting the experiments.

SOURCES OF RYEGRASS SEED

Florida 80	University of Florida, Gainesville, Florida
Gulf (Source A)	Piedmont Fertilizer, Auburn, Alabama
Gulf (Source B)	Silverhill Farmer's Ass'n., Robertsdale, Alabama
Gulf (Oregon State)	Oregon State University, Corvallis, Oregon
Jackson	The Wax Company, Inc., Amory, Mississippi
Marshall	The Wax Company, Inc., Amory, Mississippi
RIO	Olsen-Fennell Seeds, Inc., Salem, Oregon
Rustmaster	DLF Trifolium, Albany, Oregon
Surrey	University of Florida, Gainesville, Florida
TAM 90	Texas A & M University, Overton, Texas
Tetragrazer 4-4-2	Pennington Seed, Inc., Lebanon, Oregon
TXR 91-SR6	Texas A & M University, Overton, Texas
WVPB-AR-90-1	Willamette Valley Plant Breeders, Inc. Brownsville, Oregon
WVPB-AR-90-300	Willamette Valley Plant Breeders, Inc. Brownsville, Oregon
WVPB-AR-92-401	Willamette Valley Plant Breeders, Inc Brownsville, Oregon

Table 1. Seasonal Dry Matter Yield of Ryegrass Varieties at Gulf Coast Substation, Fairhope, Alabama, 1993

Brand-variety	Acre Yield by Harvest Date						Season total
	12/8	1/4	1/28	3/5	4/1	5/4	
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Surrey.....	1,304	1,572	1,015	2,059	2,108	2,311	10,369
RIO.....	1,338	1,429	921	1,893	2,070	2,670	10,321
Rustmaster.....	1,038	1,376	1,325	2,101	1,995	2,444	10,279
Jackson.....	1,265	1,570	1,137	2,084	1,920	2,260	10,236
Tetragrazer 4-4-2...	1,170	1,581	1,118	1,948	1,774	2,349	9,940
Gulf (Source A).....	1,323	1,619	819	2,089	1,784	2,253	9,887
Florida 80.....	1,023	1,509	1,222	2,179	1,651	2,177	9,761
TXR 91-SR6.....	923	1,489	1,263	2,081	1,873	2,131	9,760
TAM 90.....	1,222	1,530	935	1,899	1,884	2,259	9,729
Gulf (Source B).....	1,208	1,713	1,027	1,827	1,680	2,015	9,470
Gulf (Oregon State).	1,224	1,693	947	1,941	1,653	1,977	9,435
Test Mean.....	1,185	1,553	1,066	2,009	1,854	2,259	9,926
C.V. (%).....	14	14	23	7	6	11	5
L.S.D. (.10).....	198	266	294	177	135	300	559

Planted: October 6, 1992.
Soil: Malbis Fine Sandy Loam.

Table 2. Seasonal Dry Matter Yield of Ryegrass Varieties at E.V. Smith Research Center, Tallassee, Alabama, 1993

Brand-variety	Acre Yield by Harvest Date 1/04	3/16	4/06	5/07	Season total
	Lb.	Lb.	Lb.	Lb.	Lb.
Gulf (Source B).....	1,070	2,200	1,826	2,881	7,977
Rustmaster.....	673	2,320	2,073	2,883	7,949
Tetragrazer 4-4-2.....	717	2,090	1,929	3,027	7,763
Gulf (Oregon State).....	903	2,461	1,560	2,755	7,679
Gulf (Source A).....	907	2,381	1,880	2,313	7,481
TXR 91-SR6.....	557	1,923	2,374	2,466	7,320
Florida 80.....	634	2,336	1,506	2,795	7,271
Surrey.....	515	2,008	1,807	2,911	7,241
Marshall.....	731	1,829	1,888	2,734	7,182
TAM 90.....	613	2,087	1,746	2,639	7,085
RIO.....	463	1,861	1,754	2,565	6,643
WVPB-AR-90-300.....	382	1,492	2,140	2,574	6,588
WVPB-AR-90-1.....	374	2,567	1,240	2,282	6,463
WVPB-AR-92-401.....	382	1,514	1,358	2,385	5,639
Test Mean.....	637	2,076	1,792	2,658	7,163
C.V. (%).....	28	19	21	12	12
L.S.D. (.10).....	213	465	455	370	1,012

Planted: October 7, 1992.
Soil: Cahaba Fine Sandy Loam.

Table 3. Seasonal Dry Matter Yield of Ryegrass Varieties at Sand Mountain Substation, Crossville, Alabama, 1993

Brand-variety	Acre Yield by Harvest Date					Season total
	1/04	3/25	4/12	4/30	5/18	
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.
Marshall.....	408	1,218	1,527	1,000	1,809	5,962
Surrey.....	327	1,357	1,294	1,378	1,399	5,755
RIO.....	368	1,097	1,349	1,309	1,278	5,401
Tetragrazer 4-4-2.....	361	1,029	1,019	1,212	1,499	5,120
Gulf (Source A).....	539	1,026	1,102	1,235	1,199	5,101
TXR 91-SR6.....	256	1,334	1,135	1,025	1,297	5,047
Rustmaster.....	282	1,113	1,275	1,391	967	5,028
Gulf (Source B).....	728	1,351	873	939	1,105	4,996
Florida 80.....	382	1,053	938	1,444	1,122	4,939
Gulf (Oregon State)....	554	1,064	1,004	1,078	1,097	4,797
TAM 90.....	451	1,191	981	1,218	939	4,780
Test Mean.....	423	1,167	1,136	1,203	1,246	5,175
C.V. (%).....	24	20	19	16	22	9
L.S.D. (.10).....	121	285	259	228	326	536

Planted: September 30, 1992.
Soil: Hartsells Fine Sandy Loam.

Table 4. Total Dry Matter Yield of Ryegrass Varieties, 1993, and Two- and Three-Year Averages, Gulf Coast Substation, Fairhope, Alabama

Brand-variety	Dry Matter/Acre		
	1993	2-Yr. Av. (1992-1993)	3-Yr. Av. (1991-1993)
	Lb.	Lb.	Lb.
RIO	10,321	11,245	10,336
Rustmaster	10,279	11,154	10,322
Jackson	10,236	11,056	10,220
Surrey	10,369	10,997	10,057
TAM 90	9,729	10,765	9,721
Florida 80	9,761	10,558	9,640
Gulf (Source B)	9,470	9,901	9,249
Tetragrazer 4-4-2	9,940	10,667	-
Gulf (Source A)	9,887	10,564	-
Gulf (Oregon State)	9,435	10,136	-
TXR 91-SR6	9,760	-	-

Table 5. Total Dry Matter Yield of Ryegrass Varieties, 1993, and Two- and Three-Year Averages, E.V. Smith Research Center, Tallassee, Alabama

Brand-Variety	Dry Matter/Acre		
	1993	2-Yr. Av. (1992-1993)	3-Yr. Av. (1991-1993)
	Lb.	Lb.	Lb.
Rustmaster	7,949	6,839	6,758
Gulf (Source B)	7,977	6,885	6,589
Marshall	7,182	6,605	6,560
TAM 90	7,085	6,578	6,404
Florida 80	7,271	6,512	6,300
Surrey	7,241	6,255	6,267
WVPB-AR-90-300	6,588	5,805	6,135
WVPB-AR-90-1	6,463	5,956	6,021
Gulf (Source A)	7,481	6,800	-
Gulf (Oregon State)	7,679	6,782	-
Tetragrazer 4-4-2	7,763	6,550	-
TXR 91-SR6	7,320	-	-
RIO	6,643	-	-
WVPB-AR-92-401	5,639	-	-

Table 6. Total Dry Matter Yield of Ryegrass Varieties, 1993, and Two- and Three-Year Averages, Sand Mountain Substation, Crossville, Alabama

Brand-variety	Dry Matter/Acre		
	1993	2-Yr. Av. (1992-1993)	3-Yr. Av. (1991-1993)
	Lb.	Lb.	Lb.
Marshall	5,962	5,763	5,544
Surrey	5,755	5,424	5,408
Rustmaster	5,028	5,033	5,020
TAM 90	4,780	4,810	4,943
Florida 80	4,939	4,736	4,825
Gulf (Source B)	4,996	4,522	4,619
Tetragrazer 4-4-2	5,120	4,848	-
Gulf (Source A)	5,101	4,726	-
Gulf (Oregon State)	4,797	4,486	-
RIO	5,401	-	-
TXR 91-SR6	5,047	-	-

Table 7. Three-Year Average Seasonal Distribution of Ryegrass Variety Forage Production, Gulf Coast Substation, Fairhope, Alabama, 1991-1993

Brand-variety	Seasonal Forage Yield/Acre			Total
	Fall	Early Spring	Late Spring	
	Lb.	Lb.	Lb.	Lb.
RIO	4,024	4,087	2,225	10,336
Rustmaster	4,260	4,188	1,874	10,322
Jackson	4,149	3,975	2,096	10,220
Surrey	3,854	4,114	2,088	10,057
TAM 90	3,978	3,973	1,770	9,721
Florida 80	3,852	3,984	1,803	9,640
Gulf (Source B)	4,007	3,667	1,575	9,249

Table 8. Three-Year Average Seasonal Distribution of Ryegrass Variety Forage Production, E.V. Smith Research Center, Tallassee, Alabama, 1991-1993

Brand-variety	Seasonal Forage Yield/Acre			Total
	Fall	Early Spring	Late Spring	
	Lb.	Lb.	Lb.	Lb.
Rustmaster.....	1,656	3,751	1,351	6,758
Gulf (Source B).....	1,920	3,272	1,397	6,589
Marshall.....	1,701	3,593	1,266	6,560
TAM 90.....	1,692	3,405	1,308	6,404
Florida 80.....	1,678	3,357	1,265	6,300
Surrey.....	1,392	3,480	1,394	6,267
WVPB-AR-90-300.....	1,356	3,389	1,390	6,135
WVPB-AR-90-1.....	1,318	3,482	1,221	6,021

Table 9. Three-Year Average Seasonal Distribution of Ryegrass Variety Forage Production, Sand Mountain Substation, Crossville, Alabama, 1991-1993

Brand-variety	Seasonal Forage Yield/Acre			Total
	Fall	Early Spring	Late Spring	
	Lb.	Lb.	Lb.	Lb.
Marshall.....	1,241	2,918	1,386	5,544
Surrey.....	1,238	2,769	1,402	5,408
Rustmaster.....	1,271	2,545	1,204	5,020
TAM 90.....	1,298	2,498	1,147	4,943
Florida 80.....	1,294	2,245	1,286	4,825
Gulf (Source B).....	1,353	2,191	1,075	4,619