Performance of Ryegrass Varieties in Alabama, 1991-92

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PERFORMANCE OF RYEGRASS VARIETIES IN ALABAMA, 1991-92

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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. Experiments are planted annually in northern, central, and southern locations to evaluate the varieties and lines under the different environmental conditions of Alabama. 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 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.

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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 1989, the experiments were all planted by October 13. 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 1991-92 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 four seasonal periods are: autumn-forage produced through December; winter-January and February production; 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.

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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	Delta and Pine Land Co., Scott, Mississippi
Marshall	Delta and Pine Land Co., Scott, Mississippi
Nutriblend	DLF Trifolium, Albany, Oregon
Rio	Olsen-Fennell Seeds, Inc., Salem, Oregon
Rustmaster	DLF Trifolium, Albany, Oregon
Surry	University of Florida, Gainesville, Florida
TAM 90	Texas A & M University, Overton, Texas
Tetragrazer 4-4-2	Pennington Seed, Inc., Lebanon, Oregon
TXR 86-2L	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

TABLE 1. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES AT GULF COAST SUBSTATION, FAIRHOPE, ALABAMA, 1992

BRAND-VARIETY	ACRE YIELD BY HARVEST DATE							SEASON TOTAL
	12/5	1/2	2/4	2/21	3/13	4/3	5/25	
	LB.	LB.	LB.	LB.	LB.	LB.	LB.	LB.
MARSHALL	1,354	1,938	1,713	1,172	1,725	2,998	1,284	12,184
RIO	1,521	1,916	1,537	1,147	1,728	2,667	1,653	12,169
RUSTMASTER	1,468	1,809	1,666	1,108	1,588	2,963	1,427	12,029
JACKSON	1,403	1,853	1,685	1,068	1,578	2,557	1,732	11,876
TAM 90	1,380	1,868	1,687	1,057	1,566	2,804	1,439	11,801
SURRY	782	1,720	1,701	1,082	1,523	2,863	1,953	11,624
WVPB-AR-90-1	897	1,786	1,479	1,159	1,599	2,696	1,907	11,523
TETRAGRAZER 4-4-2	1,051	1,879	1,673	1,036	1,550	2,794	1,410	11,393
NUTRIBLEND	1,087	1,833	1,579	996	1,742	2,858	1,277	11,372
FLORIDA 80	1,428	1,602	1,522	989	1,443	2,810	1,560	11,354
GULF (SOURCE A)	1,248	2,026	1,515	958	1,327	2,672	1,495	11,241
GULF (OREGON STATE)	1,254	1,944	1,553	991	1,307	2,496	1,291	10,836
TXR 86-2L	352	1,575	1,623	1,033	1,560	3,073	1,512	10,728
WVPB-AR-90-300	506	1,610	1,610	1,066	1,449	2,725	1,465	10,431
GULF (SOURCE B)	1,234	1,697	1,471	934	1,343	2,523	1,130	10,332
TEST MEAN	1,131	1,804	1,601	1,053	1,535	2,767	1,502	11,393
C.V. (%)	20	13	9	9	11	10	13	6
L.S.D. (.10)	262	282	177	108	192	331	230	827

PLANTED: OCTOBER 10, 1991.
SOIL: MALBIS FINE SANDY LOAM.

TABLE 2. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES AT E.V. SMITH RESEARCH CENTER, TALLASSEE, ALABAMA, 1992

BRAND-VARIETY	ACRE YIELD BY HARVEST DATE								SEASON TOTAL
	11/25	12/17	1/22	2/21	3/13	4/9	5/1	5/26	
	LB.	LB.	LB.	LB.	LB.	LB.	LB.	LB.	LB.
GULF (SOURCE A)	1,202	781	533	672	662	931	869	468	6,118
TAM 90	1,204	623	456	613	796	949	899	531	6,071
MARSHALL	1,472	692	427	279	602	894	1,207	454	6,027
JACKSON	1,162	602	412	480	759	886	1,045	619	5,965
GULF (OREGON STATE)	1,092	682	499	687	707	831	915	472	5,885
GULF (SOURCE B)	1,011	663	547	591	577	829	1,018	556	5,792
FLORIDA 80	1,138	599	374	651	863	758	913	457	5,753
RUSTMASTER	1,065	566	430	446	843	925	992	461	5,728
WVPB-AR-90-1	923	502	327	379	687	927	1,155	549	5,449
TETRAGRAZER 4-4-2	1,081	567	373	552	610	839	894	421	5,337
SURRY	635	555	317	501	812	879	994	575	5,268
WVPB-AR-90-300	581	517	348	519	706	878	953	520	5,022
TXR 86-2L	306	436	359	568	782	943	951	619	4,964
NUTRIBLEND	1,048	556	370	398	496	706	695	374	4,643
TEST MEAN	994	596	412	524	707	870	964	505	5,573
C.V. (%)	15	12	23	16	15	14	13	19	5
L.S.D. (.10)	180	85	115	99	130	143	144	116	314

PLANTED: OCTOBER 1, 1991.
SOIL: CAHABA FINE SANDY LOAM.

TABLE 3. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES AT SAND MOUNTAIN SUBSTATION, CROSSVILLE, ALABAMA, 1992

BRAND-VARIETY	ACRE YIELD BY HARVEST DATE					SEASON TOTAL
	1/21	3/09	4/09	4/23	5/12	
	LB.	LB.	LB.	LB.	LB.	LB.
MARSHALL	971	839	1,937	1,108	709	5,564
TXR 86-2L	539	932	1,872	1,193	686	5,222
JACKSON	853	1,023	1,744	1,021	581	5,222
SURRY	528	967	1,595	1,223	780	5,093
RUSTMASTER	793	998	1,587	1,102	557	5,037
TAM 90	695	922	1,479	1,134	610	4,840
NUTRIBLEND	548	604	1,859	942	775	4,728
TETRAGRAZER 4-4-2	717	866	1,301	1,034	657	4,575
FLORIDA 80	811	986	1,172	950	614	4,533
GULF (SOURCE A)	926	885	1,118	908	514	4,351
GULF (OREGON STATE)	972	806	1,067	895	435	4,175
GULF (SOURCE B)	816	735	1,014	937	545	4,047
TEST MEAN	764	880	1,479	1,037	622	4,782
C.V. (%)	25	15	13	16	20	5
L.S.D. (.10)	227	163	238	197	150	313

PLANTED: SEPTEMBER 20, 1991.
SOIL: HARTSELLS FINE SANDY LOAM.

TABLE 4. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 1992, AND TWO- AND THREE-YEAR AVERAGES, GULF COAST SUBSTATION, FAIRHOPE, ALABAMA

BRAND-VARIETY	DRY MATTER/ACRE		
	1992	2-YR. AV. (1991-1992)	3-YR. AV. (1990-1992)
	LB.	LB.	LB.
RUSTMASTER	12,029	10,343	9,714
MARSHALL	12,184	10,084	9,693
JACKSON	11,876	10,213	9,518
NUTRIBLEND	11,372	9,788	9,299
SURRY	11,624	9,901	9,149
GULF (SOURCE B)	10,332	9,138	8,727
WVPB-AR-90-1	11,523	9,807	-
FLORIDA 80	11,354	9,579	-
WVPB-AR-90-300	10,431	9,258	-
RIO	12,169	-	-
TAM 90	11,801	-	-
TETRAGRAZER 4-4-2	11,393	-	-
GULF (SOURCE A)	11,241	-	-
GULF (OREGON STATE)	10,836	-	-
TXR 86-2L	10,728	-	-

TABLE 5. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 1992, AND TWO- AND THREE-YEAR AVERAGES, E.V. SMITH RESEARCH CENTER, TALLASSEE, ALABAMA

BRAND-VARIETY	DRY MATTER/ACRE		
	1992	2-YR. AV. (1991-1992)	3-YR. AV. (1990-1992)
	LB.	LB.	LB.
RUSTMASTER	5,728	6,162	7,035
MARSHALL	6,027	6,250	6,951
JACKSON	5,965	6,072	6,898
GULF (SOURCE B)	5,792	5,895	6,715
SURRY	5,268	5,780	6,529
NUTRIBLEND	4,643	5,611	6,380
WVPB-AR-90-300	5,022	5,909	-
FLORIDA 80	5,753	5,815	-
WVPB-AR-90-1	5,449	5,800	-
GULF (SOURCE A)	6,118	-	-
TAM 90	6,071	-	-
GULF (OREGON STATE)	5,885	-	-
TETRAGRAZER 4-4-2	5,337	-	-
TXR 86-2L	4,964	-	-

TABLE 6. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 1992, AND TWO- AND THREE-YEAR AVERAGES, SAND MOUNTAIN SUBSTATION, CROSSVILLE, ALABAMA

BRAND-VARIETY	DRY MATTER/ACRE		
	1992	2-YR. AV. (1991-1992)	3-YR. AV. (1990-1992)
	LB.	LB.	LB.
MARSHALL	5,564	5,336	5,093
SURRY	5,093	5,235	4,872
JACKSON	5,222	5,016	4,705
RUSTMASTER	5,037	5,016	4,692
NUTRIBLEND	4,728	4,921	4,529
GULF (SOURCE B)	4,047	4,431	4,178
FLORIDA 80	4,533	4,769	-
TXR 86-2L	5,222	-	-
TAM 90	4,840	-	-
TETRAGRAZER 4-4-2	4,575	-	-
GULF (SOURCE A)	4,351	-	-
GULF (OREGON STATE)	4,175	-	-

TABLE 7. THREE-YEAR AVERAGE SEASONAL DISTRIBUTION OF RYEGRASS VARIETY FORAGE PRODUCTION, GULF COAST SUBSTATION, FAIRHOPE, ALABAMA, 1990-1992

BRAND-VARIETY	SEASONAL FORAGE YIELD/ACRE				
	AUTUMN	WINTER	EARLY SPRING	LATE SPRING	TOTAL
	LB.	LB.	LB.	LB.	LB.
RUSTMASTER	1,692	2,719	3,867	1,436	9,714
MARSHALL	1,663	2,741	4,056	1,233	9,693
JACKSON	1,468	2,698	3,637	1,715	9,518
NUTRIBLEND	1,409	2,652	3,879	1,360	9,299
SURRY	1,371	2,363	3,702	1,713	9,149
GULF (SOURCE B)	1,440	2,500	3,550	1,237	8,727

TABLE 8. THREE-YEAR AVERAGE SEASONAL DISTRIBUTION OF RYEGRASS VARIETY FORAGE PRODUCTION, E.V. SMITH RESEARCH CENTER, TALLASSEE, ALABAMA, 1990-1992

BRAND-VARIETY	SEASONAL FORAGE YIELD/ACRE				
	AUTUMN	WINTER	EARLY SPRING	LATE SPRING	TOTAL
	LB.	LB.	LB.	LB.	LB.
RUSTMASTER	1,066	1,301	3,644	1,024	7,035
MARSHALL	1,226	1,061	3,624	1,040	6,951
JACKSON	999	1,190	3,491	1,217	6,898
GULF (SOURCE B)	1,077	1,488	3,077	1,073	6,715
SURRY	891	1,219	3,343	1,077	6,529
NUTRIBLEND	942	1,125	3,295	1,018	6,380

TABLE 9. THREE-YEAR AVERAGE SEASONAL DISTRIBUTION OF RYEGRASS VARIETY FORAGE PRODUCTION, SAND MOUNTAIN SUBSTATION, CROSSVILLE, ALABAMA, 1990-1992

BRAND-VARIETY	SEASONAL FORAGE YIELD/ACRE				
	AUTUMN	WINTER	EARLY SPRING	LATE SPRING	TOTAL
	LB.	LB.	LB.	LB.	LB.
MARSHALL	643	581	2,672	1,197	5,093
SURRY	636	632	2,466	1,138	4,872
JACKSON	432	755	2,435	1,083	4,705
RUSTMASTER	654	653	2,359	1,026	4,692
NUTRIBLEND	614	454	2,375	1,086	4,529
GULF (SOURCE B)	650	615	1,956	957	4,178