

Agronomy and Soils Departmental Series No. 226
Alabama Agricultural Experiment Station
Luther Waters, Director
Auburn University
Auburn, Alabama
July 2000

Performance of Ryegrass Varieties in Alabama, 1999-00

Performance of Ryegrass Varieties in Alabama, 1999-00

K. M. Glass

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. Entries in each experiment are determined by the companies or institutes that control each variety, or line, not by experiment station personnel. 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. Moderate stands were obtained at the following locations: Sand Mountain Research and Extension Center, Crossville; E.V. Smith Research Center (Plant Breeding Unit), Tallassee; Wiregrass Research and Extension Center, Headland; and Gulf Coast Research and Extension Center, 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 per acre was applied after each cutting. A 32- or 49-inch swath of each plot was harvested to a cutting height of 1½ to 2 inches with a flail harvester each time the ryegrass reached a height of 6 to 10 inches. A herbage sample of approximately 1 pound was taken from each plot at each harvest for determining forage dry matter percentage.

In 1998, tests were planted November 10, October 12, October 13, and October 16 at Crossville, Tallassee, Headland, and Fairhope, respectively. Crossville experienced drought conditions in the fall, which delayed planting. Also, April and May were dry, which stopped production early. These factors together created lower than normal yields at Crossville. All test locations had variable stands in the early growth stages. In 1999, the tests were planted October 15, October 19, and October 21, and October 19 at Crossville, Tallassee, Headland, and Fairhope, respectively. It was a mild winter and spring at all locations, but growing conditions were fairly normal. The last cutting at Headland was delayed due to mechanical difficulties; therefore, yields were higher than normal.

Strategies to meet seasonal forage needs are an important consideration for livestock producers. Tables 1-4 provide yield data **by harvest** for 1999-00 at a given location, while table 5 shows one-, two-, and three-year total yields by location. Seasonal and total forage dry matter yields by locations are provided in table 6. The three seasonal periods are fall—forage production through February; early spring—March and early April production; and late spring—production after April 20. A three-year average provides a more dependable comparison of ryegrass varieties than do single-year results. **Please note that Headland will have only a one- and two-year average because 1999 was the first year for a full ryegrass trial to be conducted at this location.**

ACKNOWLEDGMENTS

Appreciation is expressed to Mien-Huei Tzeng, Research Data Analysis, for the data processing of this report. Also acknowledged are the contributions of R.A. Dawkins, Sand Mountain Research and Extension Center; L.N. Wells and B.E. Gamble, Wiregrass Research and Extension Center; N.R. McDaniel and M.D. Pegues, Gulf Coast Research and Extension Center; and J.S. Bannon and S.P. Nightengale, E.V. Smith Research Center, for growing and harvesting the experiments.

Glass is an Agricultural Program Associate in the Auburn University Department of Agronomy and Soils.

Information contained herein is available to all persons regardless of race, color, sex, or national origin.

**TABLE 1. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES
AT GULF COAST RESEARCH AND EXTENSION CENTER, FAIRHOPE, ALABAMA, 2000**

Brand-Variety	Acre yield by harvest date					Season total
	1/03	1/21	2/24	3/30	4/17	
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
Marshall	1,686	1,132	1,548	2,233	2,527	9,126
Jackson	1,717	1,064	1,655	2,274	2,353	9,063
Jumbo	2,019	1,139	1,551	2,049	2,262	9,020
WAX ME94	1,665	1,100	1,527	2,276	2,364	8,932
Bar9Lou	1,598	1,173	1,559	2,281	2,210	8,821
Stampede	1,620	1,163	1,597	2,183	2,255	8,818
Passerel Plus	1,953	1,160	1,362	2,079	2,257	8,811
Passerel	1,937	1,123	1,264	2,073	2,375	8,772
Big Daddy	1,718	1,169	1,564	1,964	2,280	8,695
Gulf (Source B)	1,971	1,171	1,591	1,988	1,872	8,593
Gulf (Source A)	1,917	1,163	1,582	1,997	1,892	8,551
FL X1999 (GA) LR	1,571	1,133	1,575	2,076	2,195	8,550
Tetragold	1,450	1,086	1,521	2,066	2,302	8,425
Bar9Tam	1,469	1,032	1,497	2,173	2,251	8,422
TAM 90	1,582	1,115	1,556	2,093	2,019	8,365
Sirloin	1,502	1,139	1,619	2,032	2,043	8,335
Hercules	1,537	1,085	1,580	1,940	2,150	8,292
Gulf (Oregon State)	1,689	1,127	1,461	2,058	1,947	8,282
Florlina	1,346	1,098	1,531	2,109	2,163	8,247
RIO	1,322	1,025	1,479	2,096	2,198	8,120
Ribeye	1,458	1,091	1,511	2,033	1,960	8,053
FL X1998 (SII) LR	1,067	915	1,441	2,245	2,215	7,883
Natchez	1,376	780	1,621	1,961	2,097	7,835
Lafayette	1,221	994	1,498	2,018	2,097	7,828
TXR2000-1	983	943	1,540	2,232	2,115	7,813
TXR2000-T1	1,027	929	1,576	2,167	1,958	7,657
Test Mean	1,554	1,079	1,531	2,104	2,168	8,435
C.V. (%)	17	11	8	7	8	5
L.S.D. (.10)	311	138	142	175	208	492

Planted: October 19, 1999.
Soil: Malbis Fine Sandy Loam.

**TABLE 2. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES
AT PLANT BREEDING UNIT, TALLASSEE, ALABAMA, 2000**

Brand-Variety	Acre yield by harvest date						Season total
	12/14	2/08	3/02	3/22	4/11	4/27	
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
Tetragold	780	1,267	1,638	1,211	1,472	650	7,018
RIO	621	963	1,742	1,177	1,646	561	6,710
Gulf (Source B)	663	1,411	1,552	1,071	1,336	588	6,621
Gulf (Source A)	689	1,383	1,610	1,214	1,088	575	6,559
Big Daddy	691	1,292	1,434	1,057	1,419	553	6,446
Jumbo	577	1,149	1,490	1,142	1,422	652	6,432
Gulf (Oregon State)	733	1,170	1,574	1,153	1,176	568	6,374
Natchez	684	1,146	1,551	1,087	1,336	555	6,359
Passerel Plus	523	730	1,699	1,208	1,652	545	6,357
Marshall	535	773	1,516	1,314	1,630	496	6,264
Bar9Lou	548	905	1,558	1,205	1,359	603	6,178
Bar9Tam	452	1,070	1,363	1,283	1,311	609	6,088
FL X1999 (GA) LR	558	838	1,682	1,066	1,319	624	6,087
TXR2000-1	492	723	1,313	1,460	1,410	654	6,052
TAM 90	492	891	1,528	1,334	1,164	602	6,011
Ribeye	661	736	1,432	1,080	1,486	596	5,991
WAX ME94	788	757	1,214	1,161	1,441	566	5,927
Florlina	749	655	1,426	1,213	1,287	559	5,889
Jackson	539	828	1,161	1,215	1,366	574	5,683
Sirloin	555	856	1,230	1,095	1,273	550	5,559
FL X1998 (SII) LR	492	644	1,240	1,157	1,510	490	5,533
Stampede	508	604	1,359	1,096	1,401	540	5,508
Lafayette	535	709	1,220	1,094	1,303	543	5,404
Passerel	404	507	1,283	1,050	1,510	520	5,274
Hercules	530	710	1,275	866	1,327	520	5,228
TXR2000-T1	293	526	1,362	1,064	1,410	504	5,159
<i>Test Mean</i>	580	894	1,440	1,157	1,387	569	6,028
<i>C.V. (%)</i>	34	35	24	15	17	21	12
<i>L.S.D. (.10)</i>	229	373	407	199	274	142	871

Planted: October 19, 1999.

Soil: Cahaba Fine Sandy Loam.

**TABLE 3. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES
AT SAND MOUNTAIN RESEARCH AND EXTENSION CENTER, CROSSVILLE, ALABAMA, 2000**

Brand-Variety	Acre yield by harvest date					Season total
	3/03	3/23	4/11	5/01	5/23	
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
Stampede	765	1,899	1,197	3,218	1,259	8,338
Passerel Plus	885	1,372	1,313	3,142	1,590	8,302
WAX ME94	700	1,730	1,091	3,232	1,500	8,253
Lafayette	671	1,971	1,086	2,856	1,570	8,154
Marshall	742	1,407	1,317	2,977	1,570	8,013
RIO	1,152	1,199	1,097	2,997	1,376	7,821
Passerel	694	1,269	1,217	3,071	1,546	7,797
Jackson	941	1,218	1,072	2,848	1,595	7,674
TAM 90	867	1,414	994	3,097	1,295	7,667
Bar9Lou	1,101	1,583	1,086	2,674	1,184	7,628
Florlina	864	1,155	988	2,983	1,624	7,614
Ribeye	1,032	1,231	957	2,936	1,293	7,449
Gulf (Source A)	1,518	1,156	787	2,928	1,044	7,433
FL X1999 (GA) LR	923	1,525	1,038	2,681	1,244	7,411
Gulf (Oregon State)	847	1,412	934	2,751	1,427	7,371
Jumbo	855	1,379	752	3,018	1,253	7,257
Gulf (Source B)	1,116	1,106	982	2,727	1,230	7,161
Big Daddy	1,246	982	1,301	2,359	1,250	7,138
Sirloin	1,063	895	1,043	2,722	1,312	7,035
Natchez	958	1,083	858	2,850	1,254	7,003
FL X1998 (SII) LR	734	1,234	1,109	2,629	1,272	6,978
Hercules	1,166	1,061	899	2,633	1,208	6,967
TXR2000-1	435	1,136	1,084	2,751	1,464	6,870
TXR2000-T1	682	1,121	928	2,759	1,317	6,807
Bar9Tam	873	1,157	1,150	2,250	1,360	6,790
Tetragold	1,074	1,084	842	2,406	1,303	6,709
Test Mean	919	1,299	1,043	2,827	1,359	7,448
C.V. (%)	30	41	20	13	18	10
L.S.D. (.10)	326	623	244	437	293	845

Planted: October 15, 1999.

Soil: Hartsells Fine Sandy Loam.

**TABLE 4. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES
AT WIREGRASS RESEARCH AND EXTENSION CENTER, HEADLAND, ALABAMA, 2000**

Brand-Variety	—Acre yield by harvest date—			Season total
	1/21	3/03	3/31	
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
Sirloin	723	2,097	4,591	7,411
Natchez	1,086	2,335	3,706	7,127
Tetragold	977	1,960	4,102	7,039
Gulf (Source A)	811	2,326	3,897	7,034
RIO	1,093	1,914	3,985	6,992
Ribeye	935	1,978	4,001	6,914
Marshall	827	1,749	4,332	6,908
TAM 90	720	1,660	4,415	6,795
Bar9Tam	799	1,700	4,265	6,764
Big Daddy	1,105	1,958	3,639	6,702
WAX ME94	811	2,181	3,560	6,552
Gulf (Source B)	947	1,897	3,706	6,550
Stampede	730	1,922	3,874	6,526
Bar9Lou	620	1,619	4,284	6,523
Florlina	649	1,674	4,193	6,516
Passerel	853	1,696	3,939	6,488
Passerel Plus	689	1,611	4,153	6,453
Jackson	923	1,685	3,838	6,446
TXR2000-T1	590	1,828	4,015	6,433
FL X1999(GA)LR	667	1,855	3,891	6,413
Gulf (Oregon State)	737	1,840	3,832	6,409
Hercules	835	1,431	4,046	6,312
TXR2000-1	371	1,567	4,316	6,254
Jumbo	738	1,697	3,722	6,157
FL X1998(SII) LR	520	1,274	4,291	6,085
Lafayette	682	1,503	3,706	5,891
<i>Test Mean</i>	786	1,806	4,012	6,604
<i>C.V. (%)</i>	23	21	10	10
<i>L.S.D. (.10)</i>	216	441	459	748

Planted: October 21, 1999.

Soil: Dothan Sandy Loam.

TABLE 5. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 2000, AND TWO- AND THREE-YEAR AVERAGES AT GULF COAST RESEARCH AND EXTENSION CENTER, PLANT BREEDING UNIT, SAND MOUNTAIN RESEARCH AND EXTENSION CENTER, AND WIREGRASS RESEARCH AND EXTENSION CENTER

Brand-Variety	—Dry matter/acre—			Brand-Variety	—Dry matter/acre—		
	2000	2-yr. avg. (1999-00)	3-yr. avg. (1998-00)		2000	2-yr. avg. (1999-00)	3-yr. avg. (1998-00)
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>		<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
GULF COAST RESEARCH AND EXTENSION CENTER				PLANT BREEDING UNIT			
Marshall	9,126	9,332	8,827	Gulf (Source B)	6,621	6,670	6,288
RIO	8,120	9,262	8,496	WAX ME94	5,927	5,785	6,263
WAX ME94	8,932	9,101	8,469	RIO	6,710	6,209	6,230
Jackson	9,063	9,369	8,283	Big Daddy	6,446	6,308	6,229
Hercules	8,292	8,642	8,253	Ribeye	5,991	5,477	6,143
TAM 90	8,365	8,935	8,081	Jumbo	6,432	6,323	6,057
Gulf (Source B)	8,593	8,799	7,949	Gulf (Source A)	6,559	5,877	5,996
Jumbo	9,020	8,805	7,894	Tetragold	7,018	6,308	5,895
Big Daddy	8,695	8,628	7,852	Jackson	5,683	5,698	5,831
Gulf (Source A)	8,551	8,608	7,852	Gulf (Oregon State)	6,374	5,744	5,681
Tetragold	8,425	8,359	7,786	TAM 90	6,011	5,449	5,604
Gulf (Oregon State)	8,282	8,368	7,564	Marshall	6,264	5,591	5,535
Ribeye	8,053	8,060	7,181	Hercules	5,228	4,910	4,596
Passerel	8,772	9,589	—	Passerel Plus	6,357	6,126	—
Passerel Plus	8,811	9,277	—	Sirloin	5,559	6,073	—
Stampede	8,818	8,841	—	Stampede	5,508	5,747	—
FL X1998(SII) LR	7,883	8,715	—	Passerel	5,274	5,451	—
Sirloin	8,335	8,500	—	FL X1998(SII) LR	5,533	5,340	—
Bar9Lou	8,821	—	—	Natchez	6,359	—	—
FL X1999(GA)LR	8,550	—	—	Bar9Lou	6,178	—	—
Bar9Tam	8,422	—	—	Bar9Tam	6,088	—	—
Florlina	8,247	—	—	FL X1999(GA)LR	6,087	—	—
Natchez	7,835	—	—	TXR2000-1	6,052	—	—
Lafayette	7,828	—	—	Florlina	5,889	—	—
TXR2000-1	7,813	—	—	Lafayette	5,404	—	—
TXR2000-T1	7,657	—	—	TXR2000-T1	5,159	—	—

continued

TABLE 5, CONTINUED. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 2000, AND TWO- AND THREE-YEAR AVERAGES AT GULF COAST RESEARCH AND EXTENSION CENTER, PLANT BREEDING UNIT, SAND MOUNTAIN RESEARCH AND EXTENSION CENTER, AND WIREGRASS RESEARCH AND EXTENSION CENTER

Brand-Variety	—Dry matter/acre—			Brand-Variety	—Dry matter/acre—		
	2000	2-yr. avg. (1999-00)	3-yr. avg. (1998-00)		2000	2-yr. avg. (1999-00)	3-yr. avg. (1998-00)
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>		<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
SAND MOUNTAIN RESEARCH AND EXTENSION CENTER				WIREGRASS RESEARCH AND EXTENSION CENTER			
WAX ME94	8,253	5,495	5,094	WAX ME94	6,552	9,099	—
TAM 90	7,667	5,487	5,034	Marshall	6,908	9,101	—
RIO	7,821	5,316	5,030	Big Daddy	6,702	8,768	—
Marshall	8,013	5,563	5,010	RIO	6,992	8,730	—
Jackson	7,674	5,404	4,909	Jackson	6,446	8,557	—
Gulf (Source A)	7,433	5,314	4,834	Gulf (Oregon State)	6,409	8,003	—
Ribeye	7,449	5,149	4,708	Gulf (Source A)	7,034	8,182	—
Gulf (Oregon State)	7,371	5,158	4,662	Gulf (Source B)	6,550	8,153	—
Big Daddy	7,138	5,105	4,620	TAM 90	6,795	8,302	—
Gulf (Source B)	7,161	4,852	4,607	Jumbo	6,157	8,112	—
Jumbo	7,257	5,041	4,586	Sirloin	7,411	8,805	—
Hercules	6,967	4,914	4,395	Tetragold	7,039	8,492	—
Tetragold	6,709	4,696	4,285	FL X1998(SII) LR	6,085	8,379	—
Stampede	8,338	5,962	—	Hercules	6,312	8,372	—
Passerel Plus	8,302	5,681	—	Stampede	6,526	8,241	—
Passerel	7,797	5,305	—	Passerel	6,488	8,195	—
FL X1998(SII) LR	6,978	5,155	—	Passerel Plus	6,453	7,947	—
Sirloin	7,035	5,053	—	Ribeye	6,914	7,942	—
Lafayette	8,154	—	—	Natchez	7,127	—	—
Bar9Lou	7,628	—	—	Bar9Tam	6,764	—	—
Florlina	7,614	—	—	Bar9Lou	6,523	—	—
FL X1999(GA)LR	7,411	—	—	Florlina	6,516	—	—
Natchez	7,003	—	—	TXR2000-T1	6,433	—	—
TXR2000-1	6,870	—	—	FL X1999(GA)LR	6,413	—	—
TXR2000-T1	6,807	—	—	TXR2000-1	6,254	—	—
Bar9Tam	6,790	—	—	Lafayette	5,891	—	—

TABLE 6. THREE-YEAR AVERAGE SEASONAL DISTRIBUTION OF RYEGRASS VARIETY PRODUCTION AT GULF COAST RESEARCH AND EXTENSION CENTER, PLANT BREEDING UNIT, AND SAND MOUNTAIN RESEARCH AND EXTENSION CENTER, 1998-00

Brand-Variety	Seasonal forage yield/acre			Total
	Fall	Early spring	Late spring	
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
GULF COAST RESEARCH AND EXTENSION CENTER				
Marshall	4,088	3,926	813	8,827
RIO	4,148	3,478	870	8,496
WAX ME94	4,012	3,631	825	8,469
Jackson	4,048	3,415	820	8,283
Hercules	4,114	3,367	773	8,253
TAM 90	3,953	3,385	742	8,081
Gulf (Source B)	4,152	3,144	653	7,949
Jumbo	3,954	3,096	843	7,894
Big Daddy	3,975	3,270	607	7,852
Gulf (Source A)	4,053	3,150	649	7,852
Tetragold	3,651	3,383	752	7,786
Gulf (Oregon State)	3,634	3,271	659	7,564
Ribeye	3,362	3,083	737	7,181
PLANT BREEDING UNIT				
Gulf (Source B)	2,099	2,841	1,349	6,288
WAX ME94	1,431	2,807	2,026	6,263
RIO	1,503	2,990	1,737	6,230
Big Daddy	1,746	2,774	1,708	6,229
Ribeye	1,411	2,902	1,830	6,143
Jumbo	1,493	2,779	1,786	6,057
Gulf (Source A)	1,694	2,839	1,463	5,996
Tetragold	1,625	2,738	1,532	5,895
Jackson	1,407	2,753	1,671	5,831
Gulf (Oregon State)	1,520	2,743	1,418	5,681
TAM 90	1,383	2,734	1,487	5,604
Marshall	1,194	2,720	1,621	5,535
Hercules	1,292	2,205	1,099	4,596
SAND MOUNTAIN RESEARCH AND EXTENSION CENTER				
WAX ME94	—	2,352	2,742	5,094
TAM 90	—	2,509	2,526	5,034
RIO	—	2,368	2,663	5,030
Marshall	—	2,305	2,706	5,010
Jackson	—	2,313	2,596	4,909
Gulf (Source A)	—	2,427	2,407	4,834
Ribeye	—	2,310	2,398	4,708
Gulf (Oregon State)	—	2,195	2,467	4,662
Big Daddy	—	2,342	2,277	4,620
Gulf (Source B)	—	2,329	2,278	4,607
Jumbo	—	2,157	2,429	4,586
Hercules	—	2,125	2,270	4,395
Tetragold	—	2,144	2,142	4,285

Sources of Ryegrass Seed

Lafayette
Natchez
RIO
Stampede

AgriBioTech, Inc., Albany, Oregon

Hercules
Ribeye
Sirloin
Tetragold
BAR9LOU
BAR9TAM

Barenbrug USA, Tangent, Oregon

Gulf (Source B)

Elberta Farmer's Coop. Elberta, Alabama

Gulf (Oregon State)

Oregon State University, Corvallis, Oregon

Passerel
Passerel Plus

Pennington Seed, Inc., Lebanon, Oregon

Gulf (Source A)

Piedmont Fertilizer, Auburn, Alabama

Big Daddy

ProSeeds Marketing, Jefferson, Oregon

TAM 90
TXR2000-T1
TXR2000-1

Texas A & M University, College Station, Texas

Jackson
Marshall
WAX ME94

The Wax Company, LLC, Amory, Mississippi

Jumbo (formerly FL X1997 (G) 4N)
FL X1998 (GA) LR
FL X1998 (SII) LR

University of Florida, Gainesville, Florida