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PERFORMANCE OF RYEGRASS VARIETIES IN ALABAMA, 1998-99

Performance of Ryegrass Varieties in Alabama, 1998-99

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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. Entries in each experiment are determined by the companies or institutes which 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 1997, the tests were planted October 6, October 8, and October 23 at Crossville, Tallassee, and Fairhope, respectively. Good stands were obtained at all locations. All locations had wet conditions, and in some cases harvest was delayed somewhat due to the wetness. 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 have created lower than normal yields at Crossville. All test locations had variable stands in the early growth stages.

Strategies to meet seasonal forage needs are an important consideration for livestock producers. Tables 1-4 provide yield data **by harvest** for 1998-99 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 not have a two- or three-year average because 1999 is the first year for a full ryegrass trial to be conducted at this location.**

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Table 1. Seasonal Dry Matter Yield of Ryegrass Varieties at Gulf Coast Research and Extension Center, Fairhope, Alabama, 1999

Brand-Variety	Acre yield by harvest date								Season total
	12/02	12/17	1/26	2/16	3/04	3/22	4/06	5/27	
	lb.	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*
Passerel	680	419	1,375	2,013	933	1,333	2,031	1,622	10,406
RIO	1,000	568	1,275	1,965	966	1,313	1,787	1,530	10,404
Jeanne	523	516	1,461	1,919	1,012	1,257	1,835	1,505	10,028
Passerel Plus	251	370	1,660	1,724	870	1,283	1,764	1,820	9,742
Surrey	891	605	1,320	1,671	861	1,314	1,808	1,224	9,694
Jackson	650	437	1,283	1,769	875	1,399	1,756	1,505	9,674
FL X1998(SII) LR	465	421	1,426	1,727	875	1,263	1,757	1,613	9,547
Marshall	567	512	1,423	1,630	896	1,309	2,042	1,159	9,538
TAM 90	683	422	1,373	1,737	846	1,433	1,789	1,222	9,505
WVPB AR-F-11	463	316	1,274	1,735	889	1,234	1,813	1,749	9,473
WVPB AR-93-101	654	418	1,192	1,813	799	1,189	1,974	1,335	9,374
WAX ME94	479	462	1,200	1,800	870	1,365	1,783	1,311	9,270
OFI A94	616	501	1,221	1,763	833	1,193	1,895	1,154	9,176
Zarastro	524	487	1,152	1,622	911	1,471	1,820	1,105	9,092
FL X1998(New) LR	607	395	1,285	1,715	862	1,173	1,695	1,325	9,057
Gulf (Source B)	1,000	482	1,196	1,520	781	1,140	1,920	965	9,004
Hercules	673	403	1,358	1,692	863	1,262	1,642	1,099	8,992
Andy	748	356	1,277	1,594	893	1,263	1,531	1,257	8,919
FL X1998(New)4N	676	347	1,276	1,374	977	1,130	1,415	1,718	8,913
Stampede	381	355	1,260	1,622	775	1,122	1,717	1,632	8,864
TXR97-3	453	396	1,299	1,435	847	1,239	1,864	1,235	8,768
Sirloin	307	393	1,347	1,673	784	1,258	1,823	1,080	8,665
Gulf (Source A)	763	463	1,192	1,614	776	1,177	1,674	1,006	8,665
FL X1997(G) 4N	233	188	1,360	1,699	848	1,160	1,477	1,624	8,589
Big Daddy	632	426	1,193	1,627	899	1,106	1,612	1,066	8,561
WVPB AR-R-3	511	367	1,346	1,528	771	1,192	1,751	1,081	8,547
Gulf (Oregon State)	585	443	974	1,482	779	1,262	1,921	1,007	8,453
Best One	630	326	1,451	1,512	833	1,199	1,623	743	8,317
Tetragold	257	283	1,274	1,511	855	1,222	1,700	1,190	8,292
Ribeye	119	190	1,149	1,582	744	1,331	1,740	1,211	8,066
TXR96-3	295	249	947	1,657	689	1,247	1,766	958	7,808
Grazer	410	259	1,141	1,685	738	1,249	1,637	614	7,733
L-LWT 355	469	274	905	1,572	773	1,117	1,411	943	7,464
Test Mean	***551***	***395***	***1,269***	***1,666***	***846***	***1,249***	***1,751***	***1,261***	***8,988***
C.V. (%)	***41***	***29***	***15***	***13***	***9***	***14***	***10***	***15***	***7***
L.S.D. (.10)	***263***	***135***	***223***	***261***	***90***	***209***	***207***	***228***	***742***

Planted: October 16, 1998.
Soil: Malbis Fine Sandy Loam.

Table 2. Seasonal Dry Matter Yield of Ryegrass Varieties at Plant Breeding Unit, Tallassee, Alabama, 1999

Brand-Variety	Acre yield by harvest date					Season total
	12/07	2/15	3/18	4/09	5/11	
	lb.	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*
Gulf (Source B)	1,886	1,507	971	1,233	1,121	6,718
Sirloin	1,668	1,474	920	1,197	1,328	6,587
FL X1998(New) LR	1,436	1,172	939	1,198	1,504	6,249
FL X1997(G) 4N	1,362	936	818	1,217	1,881	6,214
Big Daddy	1,231	1,232	932	1,032	1,742	6,169
TXR97-3	1,443	1,063	935	1,322	1,314	6,077
Stampede	1,457	992	797	1,203	1,537	5,986
Passerel Plus	1,234	1,288	520	870	1,982	5,894
WVPB AR-R-3	1,223	1,127	915	1,082	1,512	5,859
Jackson	1,325	897	881	1,076	1,533	5,712
RIO	1,043	1,137	852	998	1,677	5,707
WAX ME94	1,061	1,000	611	1,092	1,879	5,643
Passerel	1,443	881	484	913	1,907	5,628
Tetragold	1,173	1,168	858	918	1,481	5,598
FL X1998(New) 4N	836	1,145	951	869	1,692	5,493
Surrey	856	1,242	882	1,083	1,266	5,329
WVPB AR-93-101	972	928	1,181	1,011	1,197	5,289
Grazer	1,218	957	1,133	959	956	5,223
Gulf (Source A)	1,004	1,331	957	1,086	816	5,194
FL X1998(SII) LR	1,010	950	791	1,061	1,334	5,146
Gulf (Oregon State)	1,053	977	913	1,114	1,057	5,114
OFI A94	863	951	841	1,102	1,278	5,035
WVPB AR-F-11	1,422	844	544	777	1,377	4,964
Ribeye	944	1,018	785	1,037	1,178	4,962
Marshall	1,174	726	461	1,119	1,437	4,917
TAM 90	843	1,081	596	1,059	1,307	4,886
Andy	1,528	929	678	648	1,023	4,806
Best One	1,231	859	714	842	1,122	4,768
Hercules	1,094	902	612	803	1,180	4,591
L-LWT 355	1,021	943	681	651	983	4,279
TXR96-3	633	763	675	1,039	1,092	4,202
Zarastro	1,123	715	557	646	828	3,869
Jeanne	765	746	443	585	1,102	3,641
Test Mean	***1,169***	***1,027***	***783***	***995***	***1,352***	***5,326***
C.V. (%)	***49***	***26***	***32***	***24***	***23***	***22***
L.S.D. (.10)	***677***	***313***	***292***	***284***	***358***	***1,368***

Planted: October 12, 1998.
Soil: Cahaba Fine Sandy Loam.

Table 3. Seasonal Dry Matter Yield of Ryegrass Varieties at Sand Mountain Research and Extension Center, Crossville, Alabama, 1999

Brand-Variety	Acre yield by harvest date			Season total
	4/02	4/14	5/07	
	lb.	*lb.*	*lb.*	*lb.*
Stampede	1,726	863	997	3,586
FL X1998(SII) LR	1,439	764	1,128	3,331
TAM 901,348	1,040	919	3,307	
Gulf (Source A)	1,477	655	1,062	3,194
Grazer	1,430	468	1,282	3,180
OFI A94	1,313	792	1,035	3,140
Jackson	1,107	918	1,109	3,134
Marshall	900	1,027	1,185	3,112
Big Daddy	1,298	616	1,157	3,071
Sirloin	1,249	817	1,004	3,070
Passerel Plus	1,082	933	1,044	3,059
Surrey	1,373	594	1,019	2,986
FL X1998(New) 4N	1,032	708	1,210	2,950
Gulf (Oregon State)	1,132	780	1,033	2,945
Hercules	1,076	783	1,002	2,861
Ribeye	1,058	807	983	2,848
FL X1997(G) 4N	1,329	608	888	2,825
TXR97-3	856	868	1,095	2,819
Passerel	681	881	1,250	2,812
RIO	1,063	772	976	2,811
WAX ME94	828	904	1,005	2,737
WVPB AR-93-101	1,056	699	954	2,709
Tetragold	1,223	613	847	2,683
TXR96-3	839	841	973	2,653
WVPB AR-R-3	835	802	1,012	2,649
Best One	1,252	561	798	2,611
L-LWT 355	1,211	521	864	2,596
FL X1998(New) LR	841	779	927	2,547
Gulf (Source B)	925	734	883	2,542
Andy	872	676	983	2,531
Jeanne	632	833	1,036	2,501
Zarastro	580	752	1,124	2,456
WVPB AR-F-11	568	706	1,084	2,358
Test Mean	***1,080***	***761***	***1,026***	***2,867***
C.V. (%)	***32***	***18***	***16***	***13***
L.S.D. (.10)	***401***	***163***	***190***	***443***

Planted: November 10, 1998.
Soil: Hartsells Fine Sandy Loam.

Table 4. Seasonal Dry Matter Yield of Ryegrass Varieties at Wiregrass Research and Extension Center, Headland, Alabama, 1999

Brand-Variety	Acre yield by harvest date						Season total
	12/11	1/12	2/08	3/16	4/19	5/13	
	lb.	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*
WAX ME94	1,251	2,266	2,127	3,541	1,184	1,276	11,645
Best One	1,402	2,200	2,302	3,094	1,110	1,514	11,622
Marshall	1,427	1,960	2,058	3,208	1,263	1,378	11,294
FL X1998(New) 4N	1,126	1,855	2,031	3,300	1,338	1,351	11,001
L-LWT 355	2,037	1,790	2,345	2,763	895	1,115	10,945
WVPB AR-R-3	1,273	2,254	2,410	3,220	1,018	697	10,872
Big Daddy	1,042	2,265	2,088	2,997	1,457	985	10,834
Surrey	1,376	1,921	2,126	3,319	1,040	917	10,699
OFI A94	1,199	2,248	2,105	3,257	1,009	873	10,691
FL X1998(SII) LR	1,024	2,038	2,061	3,460	966	1,123	10,672
Jackson	1,359	1,985	2,009	3,307	985	1,023	10,668
WVPB AR-93-101	1,621	1,786	2,130	3,221	989	913	10,660
RIO	1,114	1,757	2,039	3,173	1,166	1,218	10,467
Hercules	1,245	1,683	2,127	3,000	1,031	1,345	10,431
FL X1998(New) LR	979	1,820	2,237	3,253	1,045	1,059	10,393
Sirloin	383	1,593	2,430	3,654	983	1,156	10,199
Andy	1,625	1,736	1,955	2,897	745	1,181	10,139
FL X1997(G) 4N	573	1,482	1,855	3,508	1,241	1,408	10,067
Grazer	903	1,702	2,417	3,760	865	389	10,036
WVPB AR-F-11	1,278	1,486	1,906	2,821	879	1,639	10,009
Stampede	408	1,504	2,006	3,606	1,191	1,240	9,955
Tetragold	942	1,530	2,192	2,910	982	1,388	9,944
Passerel	1,438	1,485	1,843	2,648	1,066	1,421	9,901
TAM 90	1,877	1,348	1,899	2,811	922	952	9,809
Gulf (Source B)	1,357	1,793	2,238	2,945	930	492	9,755
TXR97-3	744	1,467	2,043	3,572	913	945	9,684
Gulf (Oregon State)	1,655	1,510	1,828	2,919	1,031	653	9,596
Jeanne	1,000	1,729	1,677	2,822	741	1,552	9,521
Passerel Plus	577	1,581	1,644	2,974	1,119	1,545	9,440
Gulf (Source A)	1,307	1,823	1,984	2,919	825	471	9,329
TXR96-3	923	1,332	1,710	3,776	1,053	478	9,272
Ribeye	570	1,177	1,917	3,389	895	1,022	8,970
Zarastro	943	1,245	1,554	2,398	441	1,199	7,780
Test Mean	***1,151***	***1,738***	***2,039***	***3,165***	***1,010***	***1,088***	***10,191***
C.V. (%)	***43***	***22***	***13***	***11***	***24***	***16***	***8***
L.S.D. (.10)	***579***	***450***	***306***	***422***	***283***	***208***	***964***

Planted: October 13, 1998.
Soil: Cahaba Fine Sandy Loam.

Table 5. Total Dry Matter Yield of Ryegrass Varieties, 1999, and Two- and Three-Year Averages at Gulf Coast Research and Extension Center, Plant Breeding Unit, and Sand Mountain Research and Extension Center

Brand-Variety	Dry matter/acre		
	1999	2-yr. avg. (1998-99)	3-yr. avg. (1997-99)
	lb.	*lb.*	*lb.*
GULF COAST RESEARCH AND EXTENSION CENTER			
Marshall	9,538	8,678	8,537
RIO	10,404	8,684	8,507
WVPB AR-F-11	9,473	8,378	8,370
TAM 90	9,505	7,939	8,295
WAX ME94	9,270	8,237	8,234
WVPB AR-93-101	9,374	7,982	8,085
Hercules	8,992	8,234	8,046
Jackson	9,674	7,894	7,976
Surrey	9,694	8,230	7,906
OFI A94	9,176	7,847	7,882
FL X1997(G) 4N	8,589	7,331	7,629
WVPB AR-R-3	8,547	7,428	7,617
Gulf (Source B)	9,004	7,628	7,442
Gulf (Source A)	8,665	7,503	7,442
Big Daddy	8,561	7,431	7,351
Ribeye	8,066	6,745	7,293
Gulf (Oregon State)	8,453	7,205	7,122
Grazer	7,733	6,753	6,542
Tetragold	8,292	7,467	-
Passerel	10,406	-	-
Jeanne	10,028	-	-
Passerel Plus	9,742	-	-
FL X1998(SII) LR	9,547	-	-
Zarastro	9,092	-	-
FL X1998(New) LR	9,057	-	-
Andy	8,919	-	-
FL X1998(New) 4N	8,913	-	-
Stampede	8,864	-	-
TXR97-3	8,768	-	-
Sirloin	8,665	-	-
Best One	8,317	-	-
TXR96-3	7,808	-	-
L-LWT 355	7,464	-	-
PLANT BREEDING UNIT			
WAX ME94	5,643	6,431	5,712
Ribeye	4,962	6,219	5,451
Big Daddy	6,169	6,120	5,418
RIO	5,707	5,990	5,360
Gulf (Source B)	6,718	6,122	5,272
WVPB AR-R-3	5,859	5,983	5,265
Jackson	5,712	5,905	5,242
FL X1997(G) 4N	6,214	5,870	5,233
Surrey	5,329	5,731	5,162
Gulf (Source A)	5,194	5,714	5,073
TAM 90	4,886	5,401	5,005
Grazer	5,223	5,656	4,995
WVPB AR-93-101	5,289	5,439	4,963
OFI A94	5,035	5,485	4,908
Gulf (Oregon State)	5,114	5,335	4,857
Marshall	4,917	5,170	4,728
WVPB AR-F-11	4,964	5,311	4,661
PLANT BREEDING UNIT (continued)			
Hercules	4,591	4,280	4,038
Tetragold	5,598	5,334	-
Sirloin	6,587	-	-
FL X1998(New) LR	6,249	-	-
TXR97-3	6,077	-	-
Stampede	5,986	-	-
Passerel Plus	5,894	-	-
Passerel	5,628	-	-
FL X1998(New) 4N	5,493	-	-
FL X1998(SII) LR	5,146	-	-
Andy	4,806	-	-
Best One	4,768	-	-
L-LWT 355	4,279	-	-
TXR96-3	4,202	-	-
Zarastro	3,869	-	-
Jeanne	3,641	-	-
SAND MOUNTAIN RESEARCH AND EXTENSION CENTER			
Marshall	3,112	3,509	4,059
WAX ME94	2,737	3,514	3,837
RIO	2,811	3,635	3,825
Jackson	3,134	3,526	3,820
Surrey	2,986	3,515	3,805
TAM 90	3,307	3,718	3,723
OFI A94	3,140	3,631	3,686
Grazer	3,180	3,135	3,594
Gulf (Source B)	2,542	3,331	3,514
FL X1997(G) 4N	2,825	3,251	3,464
Ribeye	2,848	3,338	3,400
Gulf (Source A)	3,194	3,535	3,387
Gulf (Oregon State)	2,945	3,308	3,376
Big Daddy	3,071	3,361	3,353
Hercules	2,861	3,110	3,326
WVPB AR-R-3	2,649	3,450	-
WVPB AR-93-101	2,709	3,323	-
WVPB AR-F-11	2,358	3,252	-
Tetragold	2,683	3,074	-
Stampede	3,586	-	-
FL X1998(SII) LR	3,331	-	-
Sirloin	3,070	-	-
Passerel Plus	3,059	-	-
FL X1998(New) 4N	2,950	-	-
TXR97-3	2,819	-	-
Passerel	2,812	-	-
TXR96-3	2,653	-	-
Best One	2,611	-	-
L-LWT 355	2,596	-	-
FL X1998(New) LR	2,547	-	-
Andy	2,531	-	-
Jeanne	2,501	-	-
Zarastro	2,456	-	-

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, 1997-99

Brand-Variety	Seasonal forage yield/acre			Total
	Fall	Early spring	Late spring	
	lb.	*lb.*	*lb.*	*lb.*
GULF COAST RESEARCH AND EXTENSION CENTER				
Marshall	3,083	3,175	2,342	8,600
WAX ME94	3,137	2,844	2,162	8,143
Marshall	3,865	3,209	1,462	8,537
RIO	4,177	2,775	1,555	8,507
WVPB AR-F-11	3,808	2,907	1,655	8,370
TAM 90	4,022	2,833	1,440	8,295
WAX ME94	3,882	2,870	1,482	8,234
WVPB AR-93-101	3,840	2,718	1,528	8,085
Hercules	3,926	2,738	1,381	8,046
Jackson	3,798	2,648	1,530	7,976
Surrey	3,904	2,666	1,336	7,906
OFI A94	3,694	2,677	1,511	7,882
FL X1997(G) 4N	3,758	2,381	1,490	7,629
WVPB AR-R-3	3,585	2,650	1,382	7,617
Gulf (Source B)	3,596	2,561	1,284	7,442
Gulf (Source A)	3,610	2,557	1,275	7,442
Big Daddy	3,590	2,495	1,266	7,351
Ribeye	3,409	2,451	1,432	7,293
Gulf (Oregon State)	3,187	2,623	1,311	7,122
Grazer	3,284	2,323	935	6,542
PLANT BREEDING UNIT				
WAX ME94	1,168	1,987	2,557	5,712
Ribeye	1,240	1,907	2,304	5,451
Big Daddy	1,388	1,816	2,214	5,418
RIO	1,245	1,907	2,208	5,360
Gulf (Source B)	1,717	1,842	1,714	5,272
WVPB AR-R-3	1,188	1,948	2,129	5,265
Jackson	1,176	1,935	2,131	5,242
FL X1997(G) 4N	1,122	1,792	2,319	5,233
Surrey	1,205	1,942	2,014	5,162
Gulf (Source A)	1,400	1,842	1,831	5,073
TAM 90	1,169	1,851	1,985	5,005
Grazer	1,132	2,139	1,724	4,995
WVPB AR-93-101	1,129	1,914	1,920	4,963
OFI A94	1,064	1,917	1,927	4,908
Gulf (Oregon State)	1,227	1,791	1,839	4,857
Marshall	946	1,667	2,115	4,728
WVPB AR-F-11	1,073	1,544	2,044	4,661
Hercules	1,157	1,381	1,501	4,038
SAND MOUNTAIN RESEARCH AND EXTENSION CENTER				
Marshall	-	2,251	1,808	4,059
WAX ME94	-	2,101	1,736	3,837
RIO	-	2,115	1,710	3,825
Jackson	-	2,196	1,623	3,820
Surrey	-	2,164	1,640	3,805
TAM 90	-	2,245	1,477	3,723
OFI A94	-	2,077	1,610	3,686
Grazer	-	2,219	1,375	3,594
Gulf (Source B)	-	2,046	1,468	3,514
FL X1997(G) 4N	-	2,016	1,448	3,464
Ribeye	-	1,960	1,440	3,400
Gulf (Source A)	-	1,904	1,484	3,387
Gulf (Oregon State)	-	1,834	1,542	3,376
Big Daddy	-	1,858	1,495	3,353
Hercules	-	1,847	1,479	3,326

Sources of Ryegrass Seed

Hercules Ribeye Sirloin Tetragold	**Barenbrug USA, Tangent, Oregon**
Andy Jeanne L-LWT 355 Zarastro	**DLF Trifolium, USA, Corvallis, Oregon**
Gulf (Source B)	**Elberta Farmer's Coop. Elberta, Alabama**
OFI-A94 RIO Stampede	**Olsen-Fennell Seeds, Inc., Salem, Oregon**
Gulf (Oregon State)	**Oregon State University, Corvallis, Oregon**
Best One Passerel Passerel Plus	**Pennington Seed, Inc., Lebanon, Oregon**
Gulf (Source A)	**Piedmont Fertilizer, Auburn, Alabama**
Big Daddy Surrey	**Smith Seed Service, Halsey, Oregon**
TAM 90 TXR96-3	**Texas A & M University, College Station, Texas** TXR97-3
Jackson Marshall WAX ME94	**The Wax Company, Inc., Amory, Mississippi**
FL X1997 (G) 4N FL X1998 (New) LR FL X1998 (New) 4N FL X1997 (SII) LR	**University of Florida, Gainesville, Florida**
Grazer	**USDA, Tifton,Georgia**
WVPB-AR-93-101 WVPB-AR-R-3 WVPB-AR-F-11	**Willamette Valley Plant Breeders, Inc.** **Brownsville, Oregon**