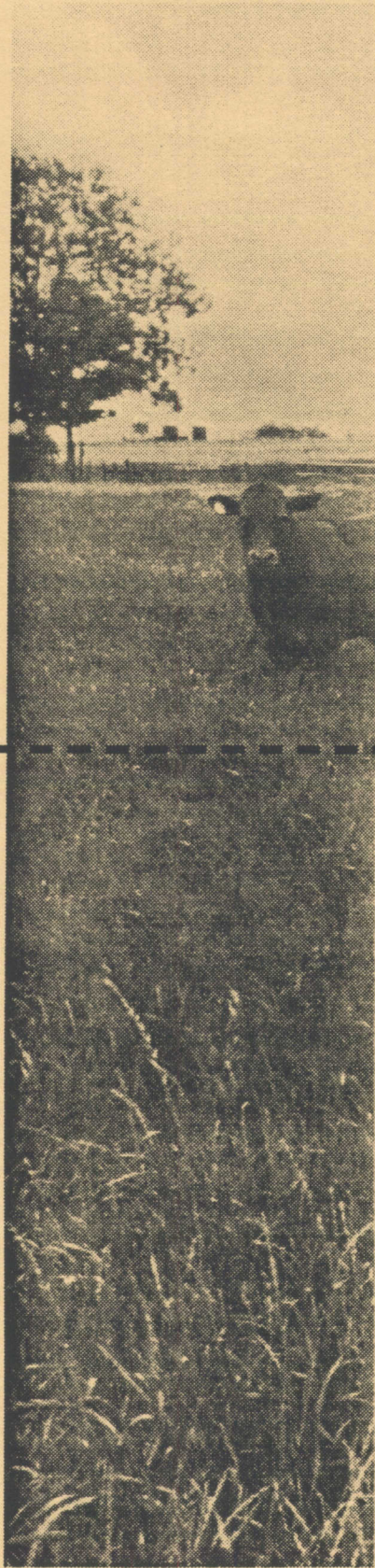




Agronomy and Soils
Departmental Series No. 204
Alabama Agricultural Experiment Station
James E. Marion, Director
Auburn University
Auburn University, Alabama
July 1997



**PERFORMANCE
OF
RYEGRASS
VARIETIES
IN
ALABAMA,
1996-97**

Performance of Ryegrass Varieties in Alabama, 1996-97

KATHRYN M. GLASS AND DAVID I. BRANSBY

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 seven inches apart, using 5x20-foot plots with four replications. Good stands were obtained at the following locations: Sand Mountain Substation in Crossville and E. V. Smith Research Center Plant Breeding Unit in Tallassee. A less than adequate stand was obtained at Gulf Coast Substation in 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 1.5 to two inches with a flail harvester each time the ryegrass reached six to 10 inches tall. A herbage sample of approximately one pound was taken from each plot at each harvest for determining forage dry matter percentage.

In 1995, the tests were planted Sept. 29, Sept. 28, and Oct. 11 at Crossville, Tallassee, and Fairhope, respectively. Cooler than normal temperatures greatly reduced fall and winter growth at all locations. In 1996, the tests were planted Oct. 7, Oct. 17, and Oct. 15 at Crossville, Tallassee, and Fairhope, respectively. Good stands were obtained at Crossville and Tallassee. Less than adequate planting conditions reduced stands and yields at Fairhope. All locations had wet conditions, but normal growth occurred on most varieties.

Strategies to meet seasonal forage needs are an important consideration for livestock producers. Tables 1-3 provide yield data **by harvest** for 1996-97 at a given location, while Table 4 shows one-, two-, and three-year total yields by location. Seasonal and total forage dry matter yields by locations are provided in Table 5. 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 three-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 Tony Dawkins and Marvin Ruf, Sand Mountain Substation; Ronnie McDaniel and Malcomb Pegues, Gulf Coast Substation; and Jim Bannon and Stevan Nightengale, E.V. Smith Research Center, for growing and harvesting the experiments.

Glass is a Research Assistant and Bransby is a Professor in the Auburn University Department of Agronomy and Soils. Information contained in this publication is available to all, regardless of race, gender, or national origin.

**TABLE 1. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES
AT GULF COAST SUBSTATION, FAIRHOPE, ALABAMA, 1997**

Brand-variety	Acre yield by harvest date					Season total
	1/16	2/17	3/10	3/27	5/01	
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
TAM 90	3,100	1,360	1,505	950	2,094	9,009
Passerel	2,753	1,550	1,566	1,150	1,910	8,929
Hurricane	2,511	1,228	1,576	1,099	2,318	8,732
NC/FL X1996 LR	2,570	1,539	1,415	1,003	2,122	8,649
FL X1996 LR	2,648	1,535	1,304	860	2,198	8,545
WVPB-AR-90-300	2,511	1,509	1,412	926	2,090	8,448
BAR USA LM95	2,841	1,362	1,240	859	2,086	8,388
WVPB-AR-F-11	2,309	1,518	1,437	1,025	2,066	8,355
WVPB-AR-93-101	2,688	1,225	1,330	931	2,118	8,292
Marshall	2,154	1,544	1,544	1,064	1,949	8,255
WAX ME94	2,422	1,478	1,521	835	1,971	8,227
FL X1996(G)4N	2,729	1,392	1,350	814	1,941	8,226
RIO	2,315	1,598	1,277	909	2,054	8,153
Jackson	2,334	1,352	1,422	904	2,128	8,140
WVPB-AR-R-3	2,295	1,277	1,416	969	2,037	7,994
TXR95-6	1,955	1,256	1,338	975	2,448	7,972
OFI A94	2,265	1,246	1,281	926	2,236	7,954
OFI FL95	2,055	1,512	1,365	871	2,041	7,844
TXRFMR-96	2,217	1,127	1,420	833	2,226	7,823
Hercules	2,525	1,115	1,308	897	1,826	7,671
TXR95-2	1,669	896	1,600	1,005	2,477	7,647
Gulf (Source A)	2,442	891	1,293	817	1,877	7,320
Surrey	2,084	1,265	1,294	805	1,810	7,258
Big Daddy	2,064	1,231	1,131	789	1,975	7,190
Blizzard	2,182	1,136	1,269	822	1,758	7,167
Tetrablend 444T3	2,118	999	1,251	806	1,922	7,096
Gulf (Source B)	2,077	988	1,269	842	1,894	7,070
FL X1995(GXS)MR	2,241	1,317	1,225	598	1,645	7,026
Assertive	2,598	945	1,104	663	1,663	6,973
Gulf (Oregon State)	1,919	1,018	1,234	828	1,956	6,955
OFI PM1	2,070	902	1,159	839	1,871	6,841
Grazer	2,026	914	1,245	450	1,484	6,119
<i>Test Mean</i>	<i>2,334</i>	<i>1,257</i>	<i>1,347</i>	<i>877</i>	<i>2,006</i>	<i>7,821</i>
<i>C.V. (%)</i>	<i>23</i>	<i>17</i>	<i>11</i>	<i>13</i>	<i>13</i>	<i>8</i>
<i>L.S.D. (.10)</i>	<i>618</i>	<i>245</i>	<i>167</i>	<i>137</i>	<i>306</i>	<i>717</i>
Planted: October 15, 1996.						
Soil: Malbis Fine Sandy Loam.						

**TABLE 2. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES
AT PLANT BREEDING UNIT, TALLASSEE, ALABAMA, 1997**

Brand-variety	Acre yield by harvest date							Season total
	1/13	1/18	3/12	3/27	4/14	5/01	5/22	
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
OFI PM1	484	455	561	777	508	627	988	4,400
WAX ME94	467	290	473	1,011	439	612	983	4,275
WVPB-AR-90-300	532	304	472	908	463	627	914	4,220
TAM 90	428	314	415	1,127	437	510	984	4,215
TXRFMR-96	480	406	524	788	333	623	979	4,133
RIO	508	302	449	940	488	557	857	4,101
Blizzard	571	482	512	704	422	511	839	4,041
Surrey	373	283	471	903	434	544	1,015	4,023
FL X1995(GXS)MR	576	446	576	677	411	471	862	4,019
Big Daddy	442	465	409	783	396	619	899	4,013
Hurricane	326	228	477	989	419	512	1,062	4,013
WVPB-AR-93-101	444	342	551	726	358	539	1,051	4,011
TXR95-6	571	423	485	863	402	499	742	3,985
Assertive	433	320	414	821	500	596	894	3,978
FL X1996(G) 4N	297	316	390	826	530	657	944	3,960
NC/FL X1996 LR	556	241	388	814	454	582	882	3,917
Jackson	361	314	527	928	406	522	857	3,915
BAR USA LM95	453	431	503	743	364	538	882	3,914
Gulf (Oregon State)	484	541	506	753	355	416	847	3,902
OFI FL95	312	271	439	856	473	571	973	3,895
Marshall	331	233	412	938	447	599	883	3,843
Passerel	345	157	364	854	523	713	881	3,837
WVPB-AR-R-3	311	326	460	887	400	568	877	3,829
Gulf (Source A)	626	565	483	672	340	433	671	3,790
Tetrablend 444T3	533	413	509	736	396	522	665	3,774
OFI A94	427	319	465	784	414	538	806	3,753
FL X1996 LR	440	346	455	820	371	501	818	3,751
Grazer	239	392	682	730	484	410	737	3,674
Gulf (Source B)	498	430	426	759	365	415	680	3,573
Hercules	492	343	381	719	417	551	653	3,556
TXR95-2	345	277	435	793	405	518	767	3,540
WVPB-AR-F-11	343	286	356	645	440	608	684	3,362
<i>Test Mean</i>	<i>438</i>	<i>352</i>	<i>468</i>	<i>821</i>	<i>425</i>	<i>547</i>	<i>862</i>	<i>3,913</i>
<i>C.V. (%)</i>	<i>44</i>	<i>29</i>	<i>18</i>	<i>18</i>	<i>17</i>	<i>16</i>	<i>20</i>	<i>12</i>
<i>L.S.D. (.10)</i>	<i>229</i>	<i>121</i>	<i>98</i>	<i>174</i>	<i>84</i>	<i>101</i>	<i>206</i>	<i>548</i>

Planted: October 17, 1996.

Soil: Cababa Fine Sandy Loam.

**TABLE 3. SEASONAL DRY MATTER YIELD OF RYEGRASS VARIETIES
AT SAND MOUNTAIN SUBSTATION, CROSSVILLE, ALABAMA, 1997**

Brand-variety	Acre yield by harvest date					Season total
	3/11	3/27	4/14	5/01	5/19	
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
Marshall	1,094	820	1,391	893	961	5,159
Passerel	855	892	1,326	932	934	4,939
FL X1996 LR	620	682	1,441	825	999	4,567
Grazer	1,236	179	1,745	297	1,057	4,514
WAX ME94	839	631	1,299	791	923	4,483
Jackson	889	621	1,371	687	839	4,407
OFI FL95	774	599	1,398	825	802	4,398
Surrey	893	410	1,452	714	915	4,384
TXR95-2	627	706	1,306	834	858	4,331
NC/FL X1996 LR	691	585	1,280	820	907	4,283
RIO	839	561	1,290	727	788	4,205
TXRFMR-96	648	622	1,287	845	781	4,183
TXR95-6	677	653	1,321	786	665	4,102
FL X1996(G) 4N	810	542	1,210	682	648	3,892
Gulf (Source B)	526	571	1,257	769	758	3,881
OFI A94	638	475	1,211	713	761	3,798
Hercules	485	560	1,246	798	669	3,758
TAM 90	661	458	1,366	682	565	3,732
BAR USA LM95	672	372	1,126	616	739	3,525
Gulf (Oregon State)	473	554	1,083	745	657	3,512
Tetablend 444T3	444	539	1,198	686	629	3,496
FL X1995(GXS)MR	857	232	1,153	533	713	3,488
OFI PM1	397	499	1,102	777	638	3,413
Big Daddy	366	588	1,123	676	585	3,338
Gulf (Source A)	416	392	1,083	666	535	3,092
<i>Test Mean</i>	<i>697</i>	<i>550</i>	<i>1,283</i>	<i>733</i>	<i>773</i>	<i>4,035</i>
<i>C. V. (%)</i>	<i>20</i>	<i>15</i>	<i>10</i>	<i>11</i>	<i>20</i>	<i>7</i>
<i>L.S.D. (.10)</i>	<i>166</i>	<i>99</i>	<i>150</i>	<i>96</i>	<i>179</i>	<i>339</i>

Planted : October 7, 1996.

Soil: Hartsells Fine Sandy Loam.

TABLE 4. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 1997, AND TWO- AND THREE-YEAR AVERAGES AT GULF COAST SUBSTATION, PLANT BREEDING UNIT, AND SAND MOUNTAIN SUBSTATION

Brand-variety	Dry matter/acre			Brand-variety	Dry matter/acre		
	1997	2-yr. avg. (1996-97)	3-yr. avg. (1995-97)		1997	2-yr. avg. (1996-97)	3-yr. avg. (1995-97)
	lb.	lb.	lb.		lb.	lb.	lb.
GULF COAST				PLANT BREEDING UNIT (continued)			
WAX ME94	8,227	8,612	9,462	Gulf (Source B)	3,573	3,604	3,899
RIO	8,153	8,648	9,038	Tetralend 444T3	3,774	3,586	3,654
Marshall	8,255	8,992	8,884	Passerel	3,837	4,288	-
Jackson	8,140	8,507	8,829	BAR USA LM95	3,914	4,243	-
TAM 90	9,009	8,981	8,815	Hercules	3,556	4,049	-
Surrey	7,258	8,052	8,313	WVPB-AR-F-11	3,362	3,846	-
Gulf (Source A)	7,320	7,504	7,958	OFI PM1	4,400	-	-
Big Daddy	7,190	7,556	7,855	TXRFMR-96	4,133	-	-
Gulf (Oregon State)	6,955	7,416	7,777	Blizzard	4,041	-	-
Gulf (Source B)	7,070	7,336	7,759	FL X1995(GXS)MR	4,019	-	-
Tetralend 444T3	7,096	7,222	7,654	Hurricane	4,013	-	-
Grazer	6,119	6,885	7,245	TXR95-6	3,985	-	-
Passerel	8,929	9,347	-	Assertive	3,978	-	-
Hurricane	8,732	9,139	-	FL X1996(G) 4N	3,960	-	-
BAR USA LM95	8,388	8,602	-	NC/FL X1996 LR	3,917	-	-
WVPB-AR-F-11	8,355	8,482	-	OFI FL95	3,895	-	-
WVPB-AR-90-300	8,448	8,364	-	OFI A94	3,753	-	-
WVPB-AR-93-101	8,292	8,324	-	FL X1996 LR	3,751	-	-
Hercules	7,671	8,275	-	TXR95-2	3,540	-	-
WVPB-AR-R-3	7,994	7,964	-	SAND MOUNTAIN			
NC/FL X1996 LR	8,649	-	-	Marshall	5,159	3,788	4,077
FL X1996 LR	8,545	-	-	Jackson	4,407	3,398	3,817
FL X1996(G) 4N	8,226	-	-	WAX ME94	4,483	3,389	3,817
TXR95-6	7,972	-	-	Surrey	4,384	3,310	3,765
OFI A94	7,954	-	-	RIO	4,205	3,393	3,727
OFI FL95	7,844	-	-	Grazer	4,514	3,305	3,565
TXRFMR-96	7,823	-	-	TAM 90	3,732	2,983	3,503
TXR95-2	7,647	-	-	Gulf (Oregon State)	3,512	2,812	3,318
Blizzard	7,167	-	-	Gulf (Source B)	3,881	2,873	3,308
FL X1995(GXS)MR	7,026	-	-	Big Daddy	3,338	2,732	3,260
Assertive	6,973	-	-	Gulf (Source A)	3,092	2,456	3,233
OFI PM1	6,841	-	-	Tetralend 444T3	3,496	2,635	3,154
PLANT BREEDING UNIT				Passerel	4,939	3,813	-
Big Daddy	4,013	5,171	4,964	Hercules	3,758	2,979	-
Jackson	3,915	4,284	4,798	BAR USA LM95	3,525	2,890	-
Surrey	4,023	4,560	4,761	FL X1996 LR	4,567	-	-
WAX ME94	4,275	4,502	4,663	OFI FL95	4,398	-	-
WVPB-AR-90-300	4,220	4,469	4,564	TXR95-2	4,331	-	-
RIO	4,101	4,747	4,480	NC/FL X1996 LR	4,283	-	-
Marshall	3,843	4,191	4,381	TXRFMR-96	4,183	-	-
TAM 90	4,215	4,151	4,233	TXR95-6	4,102	-	-
WVPB-AR-93-101	4,011	4,324	4,201	FL X1996(G) 4N	3,892	-	-
WVPB-AR-R-3	3,829	4,154	4,199	OFI A94	3,798	-	-
Grazer	3,674	3,824	4,123	FL X1995(GXS)MR	3,488	-	-
Gulf (Oregon State)	3,902	3,554	4,059	OFI PM1	3,413	-	-
Gulf (Source A)	3,790	3,904	4,029				

TABLE 5. THREE-YEAR AVERAGE SEASONAL DISTRIBUTION OF RYEGRASS VARIETY FORAGE PRODUCTION AT GULF COAST SUBSTATION, PLANT BREEDING UNIT, AND SAND MOUNTAIN SUBSTATION, 1995-97

Brand-variety	Seasonal forage yield/acre			
	Fall	Early spring	Late spring	Total
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
GULF COAST SUBSTATION				
WAX ME94	3,789	3,102	2,571	9,462
RIO	3,507	2,787	2,744	9,038
Marshall	3,219	3,118	2,547	8,884
Jackson	3,443	2,793	2,594	8,829
TAM 90	3,619	2,747	2,449	8,815
Surrey	3,225	2,649	2,438	8,313
Gulf (Source A)	3,449	2,153	2,355	7,958
Big Daddy	3,223	2,095	2,537	7,855
Gulf (Oregon State)	3,191	2,141	2,446	7,777
Gulf (Source B)	3,126	2,317	2,315	7,759
Tetrablend 444T3	2,976	2,315	2,363	7,654
Grazer	2,958	2,232	2,055	7,245
PLANT BREEDING UNIT				
Big Daddy	649	1,491	2,824	4,964
Jackson	858	1,859	2,082	4,798
Surrey	814	1,966	1,981	4,761
WAX ME94	813	1,736	2,114	4,663
WVPB-AR-90-300	687	1,834	2,043	4,564
RIO	517	1,966	1,997	4,480
Marshall	691	1,641	2,049	4,381
TAM 90	576	1,803	1,853	4,233
WVPB-AR-93-101	514	1,655	2,032	4,201
WVPB-AR-R-3	552	1,783	1,864	4,199
Grazer	617	1,806	1,700	4,123
Gulf (Oregon State)	834	1,552	1,674	4,059
Gulf (Source A)	899	1,506	1,623	4,029
Gulf (Source B)	657	1,535	1,707	3,899
Tetrablend 444T3	630	1,359	1,665	3,654
SAND MOUNTAIN SUBSTATION				
Marshall	248	1,957	1,873	4,077
Jackson	304	1,828	1,685	3,817
WAX ME94	257	1,757	1,802	3,817
Surrey	257	1,812	1,696	3,765
RIO	198	1,740	1,788	3,727
Grazer	165	1,992	1,408	3,565
TAM 90	256	1,769	1,478	3,503
Gulf (Oregon State)	262	1,623	1,433	3,318
Gulf (Source B)	215	1,684	1,408	3,308
Big Daddy	242	1,607	1,412	3,260
Gulf (Source A)	342	1,580	1,311	3,233
Tetrablend 444T3	243	1,467	1,443	3,154

SOURCES OF RYEGRASS SEED

Barenbrug USA

Tangent, Ore.
BARUSA LM95
Hercules
FLX 1995(GXS) MR

DLF Trifolium

Albany, Ore.
Blizzard
Hurricane

Olsen-Fennell Seeds, Inc.

Salem, Ore.
RIO
OFI-A94
OFI-PM1
OFI FL 95

Oregon State University

Corvallis, Ore.
Gulf (Oregon State)

Pennington Seed

Lebanon, Ore.
Passerell

Piedmont Fertilizer

Auburn, Ala.
Gulf (Source A)

Silverhill Farmer's Association

Robertsdale, Ala.
Gulf (Source B)

Smith Seed Service

Halsey, Ore.
Big Daddy
Surrey
Tetrablend 444

Texas A & M University

College Station, Texas
TAM 90
TXRFMR-96
TXR95-2
TXR95-6

The Wax Company, Inc.

Amory, Miss.
Jackson
Marshall
WAX ME94

University of Florida

Gainesville, Fla.
FL X1996 LR
NC/FL X1996 LR
FL X1996 (G) 4N

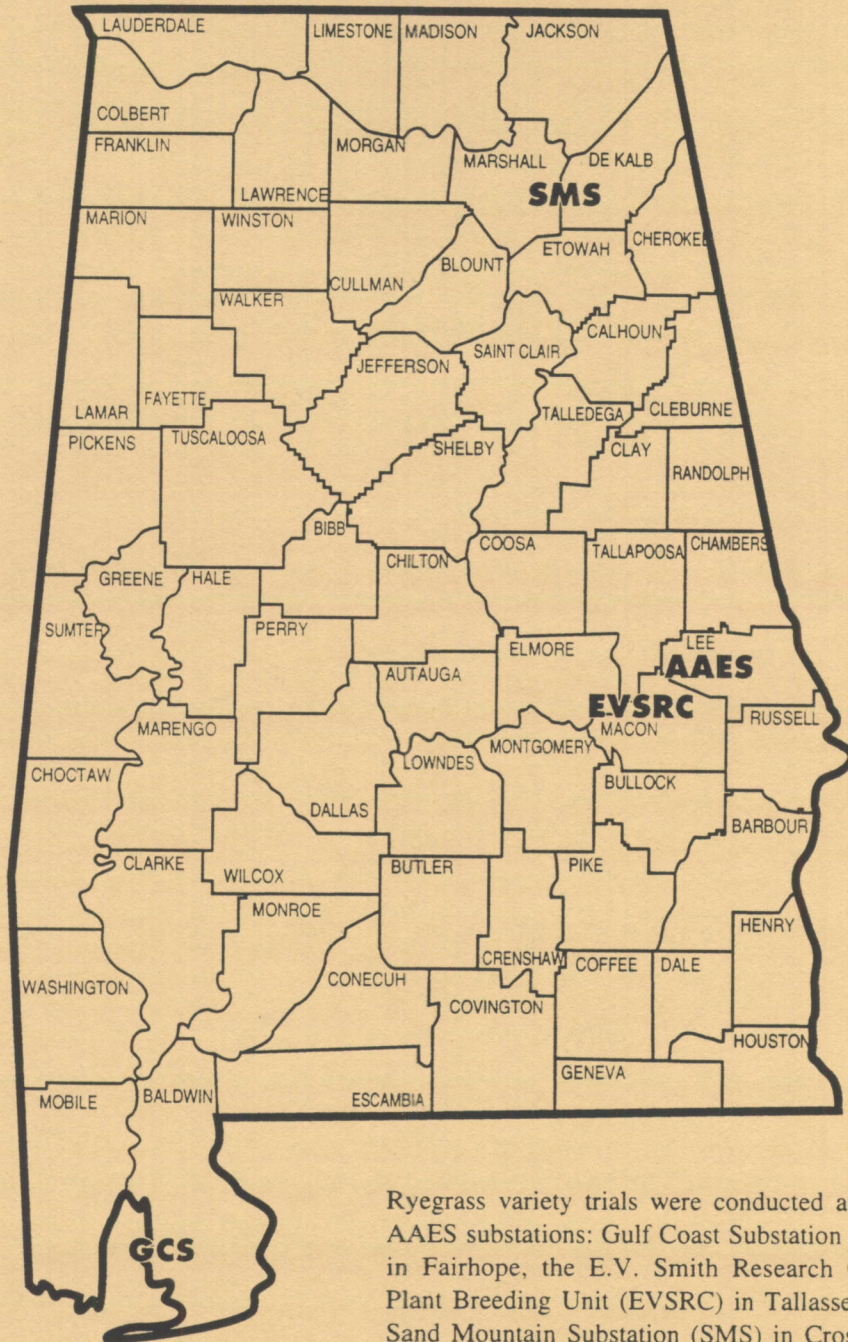
U.S. Department of Agriculture

Tifton, Ga.
Grazer

Willamette Valley Plant Breeders, Inc.

Brownsville, Ore.
WVPB-AR-90-300
WVPB-AR-93-101
WVPB-AR-R-3
WVPB-AR-F-11
Assertive

Location of Participating Research Units



Ryegrass variety trials were conducted at three AAES substations: Gulf Coast Substation (GCS) in Fairhope, the E.V. Smith Research Center Plant Breeding Unit (EVSRC) in Tallassee, and Sand Mountain Substation (SMS) in Crossville. Without the commitment of the substation personnel, results presented in this report would not have been presented in a timely manner.