

Performance of Ryegrass Varieties in Alabama, 1995-96



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PERFORMANCE OF RYEGRASS VARIETIES

IN ALABAMA, 1995-96

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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. Good stands were obtained at the following locations: Sand Mountain Substation, Crossville and Gulf Coast Substation, Fairhope. Heavy rains just after planting produced a poor stand in most plots at E.V. Smith Research Center, Tallassee². *Please read Important Note attached to Table 2.*

The experiments were fertilized with phosphorus and potassium according to Auburn University soil test recommendations. At planting, nitrogen was applied at the

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²Research conducted at the Plant Breeding Unit in Tallassee, which is a part of the E.V. Smith Research Center in Shorter.

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.

In 1995, the tests were planted September 29, September 28, and October 11 at Crossville, Tallassee, and Fairhope, respectively. Cooler than normal temperatures greatly reduced fall and winter growth at all locations. In 1994, the tests were planted September 30, September 22, and October 19 at Crossville, Tallassee, and Fairhope, respectively. Wet, cloudy conditions reduced fall growth at Crossville. Adequate rainfall in October and November produced good fall growth at Tallassee. At Fairhope, rainfall was slightly below normal during winter, but did not seem to effect yield. Winter temperatures were mild for all locations allowing good forage production throughout the rest of the growing season.

Strategies to meet seasonal forage needs are an important consideration for livestock producers. Tables 1-3 provide yield data by harvest for 1995-96 at a given location, while tables 4-6 show 1, 2, and 3-year total yields by location. Seasonal and total forage dry matter yields by locations are provided 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

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

SOURCES OF RYEGRASS SEED

BAR USA LM95 Hercules Tetragold	Barenbrug USA, Tangent, Oregon
Rustmaster Hurricane	DLF Trifolium, Albany, Oregon
RIO OFI-A9 OFI-PM	Olsen-Fennell Seeds, Inc., Salem, Oregon
Gulf (Oregon State)	Oregon State University, Corvallis, Oregon
Passerell	Pennington Seed, Lebanon, Oregon
Gulf (Source A)	Piedmont Fertilizer, Auburn, Alabama
Gulf (Source B)	Silverhill Farmer's Assn., Robertsdale, Alabama
Big Daddy (was SS33DK) SSEBPZ42 SSEBJS49 Tetrablend 444	Smith Seed Service, Halsey, Oregon
TAM 90 TXR93-3 TXR93-1	Texas A & M University, College Station, Texas
Jackson Marshall WAX ME94	The Wax Company, Inc., Amory, Mississippi
FL/OR X 1994 LR Florida 80 Surrey	University of Florida, Gainesville, Florida
Grazer	USDA, Tifton, Georgia
Andrea Columbus Comet Magnum Max	Willamette Seed Company, Albany, Oregon
WVPB-AR-90-300 WVPB-AR-93-101 WVPB-AR-R-3 WVPB-AR-92-401 WVPB-AR-A-13 WVPB-AR-ETCO 8-88 WVPB-AR-F-11 WVPB-AR-A-9	Willamette Valley Plant Breeders, Inc. Brownsville, Oregon

Table 1. Seasonal Dry Matter Yield of Ryegrass Varieties at
Gulf Coast Substation, Fairhope, Alabama, 1996

Brand-variety	Acre Yield by Harvest Date					Season Total Lb.
	1/16 Lb.	2/13 Lb.	2/29 Lb.	4/2 Lb.	5/17 Lb.	
Passerel.....	1,433	381	1,684	2,521	3,746	9,765
Marshall.....	1,378	406	1,592	2,554	3,798	9,728
Hurricane.....	1,353	495	1,744	2,307	3,647	9,546
RIO.....	1,376	501	1,460	2,022	3,784	9,143
WAX ME94.....	1,205	501	1,650	2,292	3,349	8,997
TAM 90.....	1,812	546	1,365	1,982	3,247	8,952
Columbus.....	1,437	662	1,522	1,687	3,608	8,916
Hercules.....	1,492	542	1,318	1,806	3,720	8,878
Jackson.....	1,252	513	1,630	1,976	3,503	8,874
Surrey.....	1,569	545	1,543	1,783	3,405	8,845
BAR USA LM95.....	1,691	691	1,382	1,787	3,264	8,815
MAX.....	1,208	342	1,337	1,953	3,893	8,733
FL/OR X 1994 LR.....	832	341	1,616	2,300	3,528	8,617
WVPB-AR-F-11.....	1,078	449	1,598	1,812	3,671	8,608
TXR 93-3.....	1,063	480	1,678	1,836	3,531	8,588
Comet.....	1,379	418	1,286	1,631	3,859	8,573
Andrea.....	1,307	424	1,401	2,027	3,372	8,531
OFI-A9.....	1,203	514	1,587	1,715	3,480	8,499
WVPB-AR-A-13.....	979	324	1,564	1,794	3,798	8,459
TXR 93-12.....	1,394	766	1,476	1,181	3,614	8,431
WVPB-AR-93-101.....	1,114	510	1,670	1,932	3,129	8,355
WVPB-AR-93-A-9.....	663	264	1,491	1,965	3,961	8,344
Tetragold.....	1,031	363	1,418	1,740	3,734	8,286
WVPB-AR-90-300.....	1,226	401	1,425	2,304	2,923	8,279
Rustmaster.....	1,212	554	1,726	1,932	2,802	8,226
WVPB-AR-ETCO-8-88.....	1,149	392	1,399	1,192	3,947	8,079
WVPB-AR-R-3.....	819	406	1,530	1,846	3,332	7,933
Big Daddy.....	1,462	517	1,116	1,093	3,733	7,921
Florida 80.....	1,402	518	1,325	1,352	3,317	7,914
Gulf (Oregon State).....	1,768	742	979	1,200	3,188	7,877
Magnum.....	1,542	458	1,226	1,307	3,309	7,842
SSEBPZ42.....	1,016	511	1,597	1,528	3,113	7,765
Gulf (Source A).....	1,544	699	1,121	1,205	3,119	7,688
Grazer.....	1,110	606	1,737	1,126	3,071	7,650
Gulf (Source B).....	1,580	621	1,296	1,196	2,909	7,602
WVPB-AR-92-401.....	1,415	532	1,019	1,075	3,463	7,504
SSEBJS49.....	1,235	542	1,203	924	3,497	7,401
Tetrablend 444T3.....	1,209	483	1,186	1,302	3,168	7,348
OFI-PM.....	1,079	425	1,188	1,244	3,062	6,998
Test Mean.....	1,282	497	1,438	1,703	3,451	8,372
C.V. (%).....	25	24	13	13	14	8
L.S.D. (.10).....	374	138	225	266	571	826

Planted: October 11, 1995.

Soil: Malbis Fine Sandy Loam.

Table 2. Seasonal Dry Matter Yield of Ryegrass Varieties at
Plant Breeding Unit, Tallassee, Alabama, 1996

Brand-variety	Acre Yield by Harvest Date				Season Total
	3/12	4/3	4/25	5/14	
	Lb.	Lb.	Lb.	Lb.	Lb.
Big Daddy.....	444	599	1,382	3,903	6,328
MAX.....	401	624	1,022	3,964	6,011
RIO.....	1,383	1,053	1,723	1,233	5,392
Surrey.....	965	1,193	1,804	1,134	5,096
FL/OR X 1994 LR.....	1,438	967	1,207	1,229	4,841
TXR 93-12.....	1,116	1,027	1,602	1,095	4,840
Passerel.....	615	936	1,714	1,474	4,739
WAX ME94.....	663	1,067	1,634	1,365	4,729
WVPB-AR-90-300.....	1,032	1,005	1,499	1,181	4,717
Jackson.....	742	1,041	1,635	1,235	4,653
WVPB-AR-93-101.....	821	1,011	1,594	1,211	4,637
BAR USA LM95.....	798	1,160	1,623	991	4,572
Hercules.....	824	941	1,626	1,150	4,541
Marshall.....	679	913	1,619	1,328	4,539
WVPB-AR-R-3.....	773	1,055	1,526	1,125	4,479
WVPB-AR-F-11.....	756	945	1,356	1,273	4,330
OFI-A9.....	745	987	1,444	958	4,134
TAM 90.....	701	941	1,525	919	4,086
SSEBPZ42.....	883	853	1,352	984	4,072
Gulf (Source A).....	559	791	1,692	976	4,018
Grazer.....	662	939	1,571	802	3,974
Andrea.....	887	793	1,270	1,022	3,972
SSEBJS49.....	837	811	1,454	762	3,864
Florida 80.....	599	930	1,336	939	3,804
TXR 93-3.....	360	753	1,482	1,065	3,660
Gulf (Source B).....	595	834	1,302	903	3,634
Magnum.....	456	644	1,413	966	3,479
Columbus.....	459	738	1,149	1,066	3,412
Tetrand 444T3.....	408	618	1,330	1,041	3,397
Tetragold.....	375	673	1,292	959	3,299
WVPB-AR-ETCO-8-88.....	428	643	1,092	1,131	3,294
WVPB-AR-93-A-9.....	409	695	1,059	1,055	3,218
Gulf (Oregon State).....	411	728	1,282	785	3,206
WVPB-AR-92-401.....	440	509	1,164	1,024	3,137
OFI-PM.....	467	449	1,064	1,046	3,026
WVPB-AR-A-13.....	313	495	867	1,263	2,938
Comet.....	459	504	904	1,051	2,918
Test Mean.....	673	834	1,395	1,233	4,135
C.V. (%).....	39	17	19	106*	34
L.S.D. (.10).....	304	164	318	1,537	1,641

Planted: September 28, 1995.

Soil: Cahaba Fine Sandy Loam.

*** Important Note:** The authors point out that data in this table should be viewed with extreme caution for the following reasons: (1) plots were severely infested with weeds in the spring, which appeared to affect stands and yield for the rest of the season; (2) plots were treated with 2,4-D to control weeds and varieties could respond differently to this herbicide; and (3) variation in the test, as indicated by the CV's and LSD's was extremely high.

Table 3. Seasonal Dry Matter Yield of Ryegrass Varieties at Sand Mountain Substation, Crossville, Alabama, 1996

Brand-variety	Acre Yield by Harvest Date				Season Total
	4/3	4/23	5/8	5/23	
	Lb.	Lb.	Lb.	Lb.	Lb.
FL/OR X 1994 LR.....	581	855	773	595	2,804
Passerel.....	335	943	762	646	2,686
RIO.....	453	815	784	528	2,580
TXR 93-3.....	536	722	779	481	2,518
Andrea.....	321	918	639	611	2,489
Hurricane.....	305	852	777	554	2,488
Marshall.....	137	869	801	610	2,417
Jackson.....	404	699	805	480	2,388
Rustmaster.....	290	776	768	509	2,343
WAX ME94.....	249	754	729	563	2,295
BAR USA LM95.....	364	680	663	548	2,255
TXR 93-12.....	397	652	682	505	2,236
Surrey.....	405	604	795	431	2,235
TAM 90.....	434	679	635	486	2,234
Florida 80.....	456	619	702	457	2,234
Hercules.....	557	589	601	453	2,200
MAX.....	411	729	590	419	2,149
Big Daddy.....	576	537	496	517	2,126
Gulf (Oregon State).....	486	483	628	515	2,112
Grazer.....	433	582	677	404	2,096
Columbus.....	288	657	711	392	2,048
SSEBPZ42.....	420	490	648	472	2,030
OFI-A9.....	161	644	696	501	2,002
Tetragold.....	261	557	577	496	1,891
OFI-PM.....	312	469	572	533	1,886
Comet.....	389	569	526	400	1,884
SSEBJS49.....	356	590	545	392	1,883
Gulf (Source B).....	457	361	633	413	1,864
Gulf (Source A).....	445	368	557	449	1,819
Tetrablend 444T3.....	331	420	559	464	1,774
Magnum.....	279	461	462	464	1,666
Test Mean.....	382	643	664	493	2,182
C.V. (%).....	57	24	16	14	13
L.S.D. (.10).....	258	185	124	81	339

Planted : October 11, 1995.

Soil: Hartsells Fine Sandy Loam.

Table 4. Total Dry Matter Yield of Ryegrass Varieties,
1996, and Two- and Three-Year Averages, Gulf
Coast Substation, Fairhope, Alabama

Brand-variety	Dry Matter/Acre		
	1996	2-Yr. Av. (1995-1996)	3-Yr. Av. (1994-1996)
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
RIO.....	9,143	9,481	9,120
Jackson.....	8,874	9,174	9,088
Marshall.....	9,728	9,199	9,036
Rustmaster.....	8,226	8,483	8,816
TAM 90.....	8,952	8,718	8,735
Florida 80.....	7,914	8,353	8,658
FL/OR X 1994 LR.....	8,617	8,836	8,604
Surrey.....	8,845	8,840	8,545
Gulf (Oregon State).....	7,877	8,188	8,487
Gulf (Source B).....	7,602	8,103	8,467
Gulf (Source A).....	7,688	8,277	8,349
Big Daddy.....	7,921	8,188	8,323
WAX ME94.....	8,997	10,080	-
Andrea.....	8,531	9,026	-
Columbus.....	8,916	8,796	-
MAX.....	8,733	8,629	-
Comet.....	8,573	8,186	-
Magnum.....	7,842	8,175	-
Tetrablend 444.....	7,348	7,933	-
Grazer.....	7,650	7,808	-
Passerel.....	9,765	-	-
Hurricane.....	9,546	-	-
Hercules.....	8,878	-	-
BAR USA LM95.....	8,815	-	-
WVPB-AR-F-11.....	8,608	-	-
TXR 93-3.....	8,588	-	-
OFI-A9.....	8,499	-	-
WVPB-AR-A-13.....	8,459	-	-
TXR 93-12.....	8,431	-	-
WVPB-AR-93-101.....	8,355	-	-
WVPB-AR-93-A-9.....	8,344	-	-
Tetragold.....	8,286	-	-
WVPB-AR-90-300.....	8,279	-	-
WVPB-AR-ETCO-8-88.....	8,079	-	-
WVPB-AR-R-3.....	7,933	-	-
SSEBPZ42.....	7,765	-	-
WVPB-AR-92-401.....	7,504	-	-
SSEBJS49.....	7,401	-	-
OFI-PM.....	6,998	-	-

Table 5. Total Dry Matter Yield of Ryegrass Varieties,
1996, and Two- and Three-Year Averages, Plant
Breeding Unit, Tallassee, Alabama

Brand-variety	Dry Matter/Acre		
	1996 <i>Lb.</i>	2-Yr. Av. (1995-1996) <i>Lb.</i>	3-Yr. Av. (1994-1996) <i>Lb.</i>
Jackson.....	4,653	5,240	5,617
Big Daddy.....	6,328	5,439	5,517
Marshall.....	4,539	4,650	5,215
Surrey.....	5,096	5,131	5,199
RIO.....	5,392	4,670	5,000
Florida 80.....	3,804	4,410	4,854
WVPB-AR-90-300.....	4,717	4,736	4,828
FL/OR X 1994 LR.....	4,841	4,477	4,761
TAM 90.....	4,086	4,242	4,680
WVPB-AR-93-101.....	4,637	4,296	4,669
Gulf (Oregon State).....	3,206	4,138	4,484
Gulf (Source B).....	3,634	4,062	4,475
Gulf (Source A).....	4,018	4,149	4,429
WAX ME94.....	4,729	4,857	-
MAX.....	6,011	4,830	-
WVPB-AR-R-3.....	4,479	4,385	-
Grazer.....	3,974	4,348	-
Andrea.....	3,972	4,098	-
Magnum.....	3,479	4,094	-
WVPB-AR-93-A-9.....	3,218	3,932	-
WVPB-AR-ETCO-8-88.....	3,294	3,869	-
Columbus.....	3,412	3,724	-
Comet.....	2,918	3,662	-
WVPB-AR-92-401.....	3,137	3,630	-
Tetrablend 444T3.....	3,397	3,594	-
TXR 93-12.....	4,840	-	-
Passerel.....	4,739	-	-
BAR USA LM95.....	4,572	-	-
Hercules.....	4,541	-	-
WVPB-AR-F-11.....	4,330	-	-
OFI-A9.....	4,134	-	-
SSEBPZ42.....	4,072	-	-
SSEBJS49.....	3,864	-	-
TXR 93-3.....	3,660	-	-
Tetragold.....	3,299	-	-
OFI-PM.....	3,026	-	-
WVPB-AR-A-13.....	2,938	-	-

Table 6. Total Dry Matter Yield of Ryegrass Varieties,
1996, and Two- and Three-Year Averages, Sand
Mountain Substation, Crossville, Alabama

Brand-variety	Dry Matter/Acre		
	1996	2-Yr. Av. (1995-1996)	3-Yr. Av. (1994-1996)
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
FL/OR X 1994 LR	2,804	3,866	3,958
Marshall.....	2,417	3,537	3,869
Jackson	2,388	3,522	3,743
RIO.....	2,580	3,488	3,613
TAM 90.....	2,234	3,389	3,607
Surrey.....	2,235	3,456	3,590
Gulf (Source A).....	1,819	3,303	3,461
Rustmaster.....	2,343	3,280	3,425
Gulf (Oregon State).....	2,112	3,221	3,400
Florida 80.....	2,234	3,181	3,372
Gulf (Source B)	1,864	3,021	3,222
Big Daddy.....	2,126	3,221	3,171
Andrea.....	2,489	3,525	-
WAX ME94.....	2,295	3,484	-
Grazer	2,096	3,091	-
Columbus.....	2,048	3,040	-
Tetrablend 444T3.....	1,774	2,983	-
MAX.....	2,149	2,829	-
Magnum.....	1,666	2,800	-
Comet.....	1,884	2,640	-
Passerel.....	2,686	-	-
TXR 93-3.....	2,518	-	-
Hurricane.....	2,488	-	-
BAR USA LM95.....	2,255	-	-
TXR 93-12.....	2,236	-	-
Hercules	2,200	-	-
SSEBPZ42.....	2,030	-	-
OFI-A9.....	2,002	-	-
Tetragold.....	1,891	-	-
OFI-PM.....	1,886	-	-
SSEBJS49.....	1,883	-	-

Table 7. Three-Year Average Seasonal Distribution of Ryegrass
 Variety Forage Production, Gulf Coast Substation,
 Fairhope, Alabama, 1994-1996

Brand-variety	Seasonal Forage Yield/Acre			Total
	Fall	Early Spring	Late Spring	
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
RIO.....	2,940	4,121	2,059	9,120
Jackson.....	3,004	4,200	1,884	9,088
Marshall.....	2,515	4,624	1,897	9,036
Rustmaster.....	2,863	4,385	1,568	8,816
TAM 90.....	2,990	3,994	1,751	8,735
Florida 80.....	2,995	3,788	1,874	8,658
FL/OR X 1994 LR.....	2,280	4,387	1,936	8,604
Surrey.....	2,730	3,980	1,835	8,545
Gulf (Oregon State).....	3,329	3,365	1,794	8,487
Gulf (Source B).....	3,266	3,517	1,684	8,467
Gulf (Source A).....	3,235	3,385	1,729	8,349
Big Daddy.....	3,011	3,433	1,879	8,323

Table 8. Three-Year Average Seasonal Distribution of Ryegrass
 Variety Forage Production, Plant Breeding Unit,
 Tallassee, Alabama, 1994-1996

Brand-variety	Seasonal Forage Yield/Acre			Total
	Fall	Early Spring	Late Spring	
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	
Jackson.....	1,024	2,164	2,429	5,617
Big Daddy.....	579	1,760	3,178	5,517
Marshal.....	1,884	1,926	2,406	5,215
Surrey.....	769	2,208	2,222	5,199
RIO.....	401	2,212	2,387	5,000
Florida 80.....	1,027	1,868	1,959	4,854
WVPB-AR-90-300.....	552	2,017	2,259	4,828
FL/OR X 1994 LR.....	491	1,995	2,275	4,761
TAM 90.....	800	1,939	1,942	4,680
WVPB-AR-93-101.....	331	1,997	2,340	4,669
Gulf (Oregon State).....	923	1,720	1,841	4,484
Gulf (Source B).....	731	1,751	1,993	4,475
Gulf (Source A).....	608	1,875	1,946	4,429

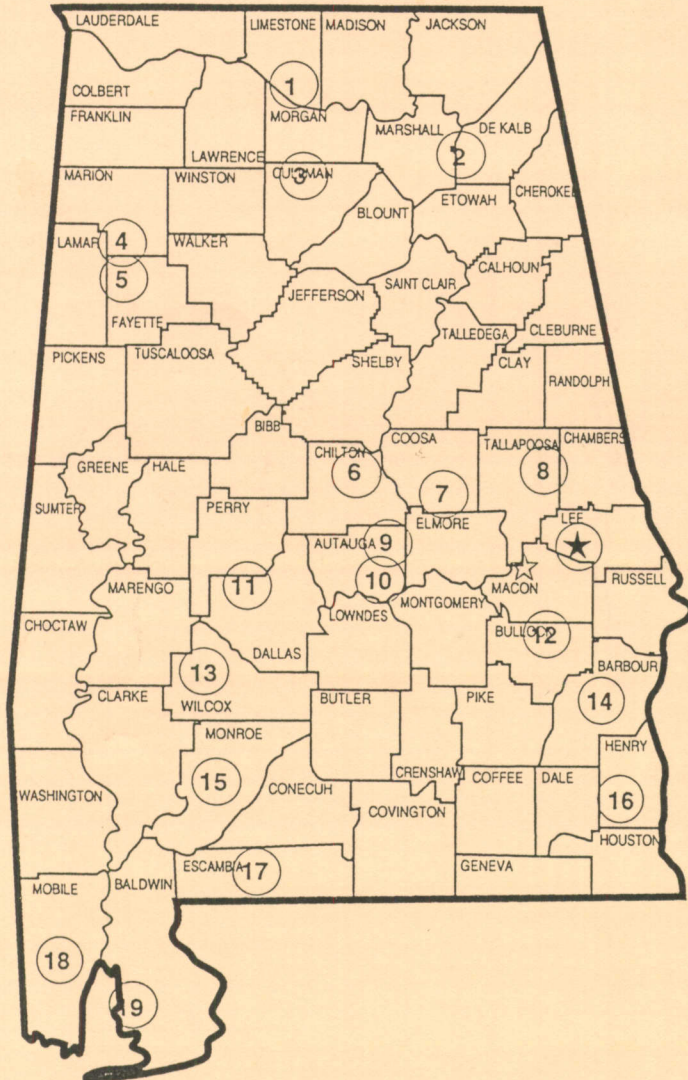
Table 9. Three-Year Average Seasonal Distribution of Ryegrass
 Variety Forage Production, Sand Mountain Substation,
 Crossville, Alabama, 1994-1996

Brand-variety	Seasonal Forage Yield/Acre			Total
	Fall	Early Spring	Late Spring	
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	
FL/OR X 1994 LR.....	211	1,907	1,839	3,958
Marshall.....	248	1,851	1,771	3,869
Jackson.....	304	1,833	1,605	3,743
RIO.....	198	1,674	1,741	3,613
TAM 90.....	256	1,812	1,538	3,607
Surrey.....	257	1,710	1,622	3,590
Gulf (Source A).....	342	1,741	1,378	3,461
Rustmaster.....	200	1,641	1,584	3,425
Gulf (Oregon State).....	262	1,732	1,406	3,400
Florida 80.....	208	1,706	1,458	3,372
Gulf (Source B).....	215	1,674	1,332	3,222
Big Daddy.....	242	1,581	1,348	3,171

Alabama's Agricultural Experiment Station System AUBURN UNIVERSITY

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1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Chilton Area Horticulture Substation, Clanton.
7. Forestry Unit, Coosa County.
8. Piedmont Substation, Camp Hill.
9. Forestry Unit, Autauga County.
10. Prattville Experiment Field, Prattville.
11. Black Belt Substation, Marion Junction.
12. The Turnipseed-Ikenberry Place, Union Springs.
13. Lower Coastal Plain Substation, Camden.
14. Forestry Unit, Barbour County.
15. Monroeville Experiment Field, Monroeville.
16. Wiregrass Substation, Headland.
17. Brewton Experiment Field, Brewton.
18. Ornamental Horticulture Substation, Spring Hill.
19. Gulf Coast Substation, Fairhope.