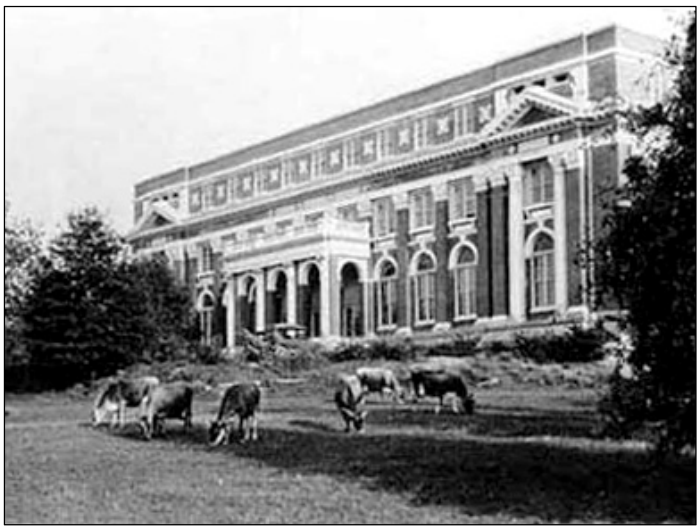
Performance of Ryegrass Varieties in Alabama, 2016-2017



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Performance of Ryegrass Varieties in Alabama, 2016-2017

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The Alabama Experiment Station system evaluates variety performance of several crop species each year. Ryegrass studies were conducted in 2016 through 2017 at four locations across the state representing the northeast, central, southeast, and southwestern regions. The entries evaluated are chosen by private company, university, and federal staff. It is the mission of the experiment station to evaluate and present the data in a fair, unbiased manner that can be used by all sectors of industry and education.

Seed Sources for the 2016-17 Ryegrass Variety Trials
Allied Seed LLC, Macon, Missouri
Fria
Barenbrug USA, Tangent, Oregon
Jumbo; Maximus; BAR LM 14167-1*; BAR LM 14167-4*;
BAR LM 15425*; BAR LM 15426*; BAR LM 15476*
DLF Pickseed USA, Halsey Oregon
Andes; Kodiak; McKinley
Local Source, Opelika, AL
Gulf
OreGro Seeds, Inc., Albany, Oregon
Diamond T; Flying A; TAMTBO; Winterhawk; Double Diamond; Triangle T
Pennington Seed, Inc., Madison, Georgia
Passerel Plus; PS12*; PS15*
Smith Seed Services, Halsey, Oregon
Attain; Big Boss; SARG-FL*
The Wax Company, LLC, Amory, Mississippi
Jackson; Marshall; WAX ME-94; WAX ME-4; Nelson; M2CVS; WMWL*
The University of Georgia, Athens
Grazer; GALM 1401*; GALM 1402*; GALM 1403*;
GALM 1501*; GALM 1502*; GALM 1503*;
GALM 1513M*; GALM 1514A*; GALM 1515F*

* Experimental varieties

Methods

Ryegrass entries were seeded at 20 lb/acre in 7-inch rows (Table 1). Plots were 5 x 20 ft with four replications of each entry arranged in a randomized complete block experimental design. The 2016 – 2017 trials were conducted at the Gulf Coast Research and Extension Center, Fairhope; E.V. Smith Research Center, Plant Breeding Unit, Tallassee; Sand Mountain Research and Extension Center, Crossville; and the Wiregrass Research and Extension Center, Headland.

Soil fertility was maintained at each location according to Auburn University soil test recommendations. At planting, nitrogen was applied at 50 lb/acre, with an additional 50 lb/acre N applied after each cutting. When the ryegrass reached a height of 6 to 10 inches, a flail harvester was used to cut the plants to 1 to 2 inches. According to the location, a section 32- or 49-in wide X 20 ft long from each plot was harvested. Dry matter yield was determined by drying subsamples from each variety and then calculated using fresh and dry weights.

At Crossville, the number of cuttings was reduced due to extremely wet conditions.

Table 1. Planting dates and soil textures for Alabama ryegrass trial locations.

		Trial Years		
Location	**Alabama Exp. Station & soil texture**	**2014-2015**	**2015-2016**	**2016-2017**
		(planting date)		
Crossville	Sand Mountain Research & Ext. Center	25-Sep-14	24-Sep-15	22-Nov-16
	Hartselle fine sandy loam			
Fairhope	Gulf Coast Research & Ext. Center	23-Sep-14	22-Sep-15	7-Oct-16
	Malbis fine sandy loam			
Headland	Wiregrass Research & Ext. Center	25-Sep-14	25-Sep-15	4-Oct-16
	Dothan fine sandy loam			
Tallassee	Plant Breeding Unit, E.V. Smith Res. Ctr.	17-Sep-14	23-Sep-15	17-Oct-16
	Cahaba fine sandy loam			

Performance of Annual Ryegrass Varieties in Alabama, 2017

Some varieties tested are considered experimental and are not currently available for retail sale. Inclusion in these trials is not a guarantee of performance or yield; rather, our data shows how the varieties performed at a specific location under specific environmental conditions.

Tables

Table 2. Gulf Coast Research & Extension Center - Fairhope, AL					
Planting Date:					
10/7/2016	**Dry Matter Yield by Harvest Timing**				
	First	**Second**	**Third**	**Fourth**	**Season**
Variety	**1/31/2017**	**3/2/2017**	**3/30/2017**	**5/3/2017**	**Total**
	(lb/Acre)				
TAMTBO	876	1592	1980	2381	6829
Double Diamond	1056	1531	1781	2347	6715
Jumbo	1078	1530	1896	2166	6671
Big Boss	917	1546	1810	2223	6497
Wax ME-4	937	1617	1865	2052	6471
Nelson	1023	1479	1790	2167	6460
Diamond T	921	1601	1817	2101	6441
Pennington PS 15	1106	1481	1778	2032	6395
BAR LM 15426	989	1456	1834	2111	6389
BAR LM 15425	1053	1434	1796	2077	6360
GALM1515	765	1324	2076	2123	6287
Wax Marshall	1045	1425	1841	1968	6278
Attain	1001	1399	1813	2031	6245
Triangle T	943	1356	1757	2187	6244
BAR LM 14167-4	1201	1323	1634	2078	6236
McKinley	909	1200	1862	2230	6201
WMWL	1035	1459	1762	1918	6174
BAR LM 15476	787	1270	1948	2147	6153
Winterhawk	902	1436	1880	1920	6138
Wax ME-94	826	1384	1812	2074	6096
GALM1503	896	1311	1791	2089	6088
Flying A	1043	1390	1787	1862	6082
Passerel Plus	910	1342	1768	2042	6061
SARG-FL	879	1385	1800	1994	6058
GALM1501	847	1332	1845	1999	6024
GALM1403	917	1376	1732	1993	6018
Pennington PS 12	923	1308	1573	2151	5955
BAR LM 14167-1	948	1260	1721	2024	5952
Jackson	845	1513	1819	1702	5879
Wax M2CVS	846	1463	1596	1956	5862
GALM1514	752	1207	1925	1976	5860
GALM1513	792	1366	1632	2030	5821
Kodiak	1027	1241	1684	1837	5789
GALM1502	998	1201	1588	1918	5705
Andes	835	1258	1684	1923	5701
GALM1402	900	1257	1660	1878	5695
Fria	880	1299	1708	1729	5617
Grazer	730	1071	1606	2144	5551
GA LM 1401	889	1057	1665	1564	5176
Gulf (Local)	690	753	963	1305	3711
Trial mean	**923**	**1356**	**1757**	**2011**	**6071**
LSD (0.1)	**136**	**132**	**147**	**175**	**603**
CV (%)	**21**	**14**	**12**	**12**	**8**
Pr>F	**0.1266**	**0.0001**	**0.0001**	**0.0001**	**0.0001**

Table 3. Plant Breeding Unit - EV Smith Research & Extension Center - Tallassee, AL					
Planting Date:					
10/17/2016	**Dry Matter Yield by Harvest Timing**				
	First	**Second**	**Third**	**Fourth**	**Season**
Variety	**1/12/2017**	**2/1/2017**	**3/6/2017**	**4/10/2017**	**Total**
	(lb/Acre)				
Wax ME-4	320	219	1928	1946	4413
Triangle T	306	415	1679	1978	4379
GALM1502	79	182	1691	2226	4178
GALM1403	160	309	1944	1660	4073
Fria	181	295	1840	1735	4050
Passerel Plus	142	322	1276	2305	4045
BAR LM 15425	269	562	1498	1706	4035
GALM1501	190	182	1928	1690	3990
Winterhawk	133	170	1911	1742	3956
GA LM 1401	97	194	1945	1605	3842
TAMTBO	166	277	1547	1849	3839
SARG-FL	189	177	1994	1455	3815
BAR LM 15426	195	513	1515	1562	3785
GALM1402	101	231	1594	1789	3716
WMWL	111	390	930	2214	3644
GALM1515	179	435	1398	1615	3627
Double Diamond	189	414	1541	1469	3614
Kodiak	223	226	1291	1806	3547
BAR LM 14167-4	152	329	1149	1880	3511
Nelson	200	341	1741	1133	3415
GALM1513	136	238	1374	1657	3405
BAR LM 14167-1	58	214	1506	1608	3386
GALM1503	153	309	1258	1611	3331
Wax ME-94	109	218	1444	1534	3306
Diamond T	189	339	1570	1185	3283
McKinley	118	270	1301	1580	3269
Jackson	83	292	1320	1568	3263
Pennington PS 15	182	274	1343	1435	3235
BAR LM 15476	103	317	1278	1535	3232
Jumbo	180	368	1583	1096	3227
Andes	140	273	1425	1381	3219
Pennington PS 12	217	553	1182	1263	3215
Flying A	197	425	1327	1154	3103
Big Boss	177	421	1358	1068	3024
Attain	201	370	1100	1316	2988
Wax Marshall	192	200	1338	1248	2978
Grazer	86	247	1009	1578	2919
Gulf (Local)	46	121	768	1900	2836
Wax M2CVS	124	240	1171	1226	2760
GALM1514	99	369	1089	1156	2712
Trial mean	**159**	**306**	**1452**	**1587**	**3504**
LSD (0.1)	**55**	**103**	**341**	**495**	**1200**
CV (%)	**49**	**48**	**33**	**44**	**29**
Pr>F	**0.0001**	**0.0012**	**0.0367**	**0.7916**	**0.8388**

Table 4. Sand Mountain Research & Extension Center - Crossville, AL			
Planting Date:			
11/22/2016	**Dry Matter Yield by Harvest Timing**		
	First	**Second**	**Season**
Variety	**4/10/2017**	**5/3/2017**	**Total**
	(lb/Acre)		
Wax M2CVS	4592	5734	10326
Wax ME-4	2875	6773	9649
WMWL	3029	6529	9558
Wax ME-94	3065	6411	9477
Jackson	2144	7234	9378
Fria	2750	6509	9259
GALM1402	2561	6631	9192
Pennington PS 15	3222	5923	9145
Nelson	3437	5554	8991
GALM1503	2983	5959	8942
BAR LM 15476	3375	5552	8927
GALM1403	2649	6253	8902
SARG-FL	3214	5666	8881
Wax Marshall	2471	6344	8815
Kodiak	2997	5611	8608
BAR LM 15425	3382	5221	8603
Triangle T	2847	5726	8573
McKinley	2709	5848	8557
GALM1515	2894	5585	8479
Winterhawk	2251	6150	8400
TAMTBO	2956	5403	8359
Pennington PS 12	2888	5405	8292
GALM1513	2638	5574	8211
Passerel Plus	2187	6015	8202
Grazer	1934	6101	8036
Attain	2981	5033	8015
Andes	2459	5543	8002
Big Boss	2882	5114	7995
Diamond T	2786	5155	7941
Jumbo	2487	5394	7881
BAR LM 14167-4	2506	5182	7689
GALM1514	2622	5056	7678
BAR LM 15426	2344	5322	7666
GALM1502	2860	4804	7665
GALM1501	2868	4617	7485
Flying A	2836	4539	7375
Double Diamond	2589	4735	7325
BAR LM 14167-1	2648	4642	7290
Gulf (Local)	2296	4239	6535
GA LM 1401	2062	4338	6400
Trial mean	**2782**	**5586**	**8368**
LSD (0.1)	**578**	**1011**	**2049**
CV (%)	**29**	**26**	**21**
Pr>F	**0.1520**	**0.5628**	**0.6089**

Table 5. Wiregrass Research & Extension Center - Headland, AL				
Planting Date:				
10/4/2016	**Dry Matter Yield by Harvest Timing**			
	First	**Second**	**Third**	**Season**
Variety	**1/12/2017**	**2/17/2017**	**3/24/2017**	**Total**
	(lb/Acre)			
Jumbo	262	1897	2590	4749
Wax ME-4	342	1954	2393	4688
Nelson	266	1988	2409	4662
BAR LM 15426	338	1785	2450	4574
WMWL	256	1879	2346	4481
Big Boss	315	1740	2382	4437
SARG-FL	244	1738	2446	4429
Diamond T	295	1753	2267	4315
Triangle T	350	1733	2230	4313
Wax ME-94	226	1551	2485	4262
Double Diamond	289	1917	1951	4157
GALM1515	291	1629	2229	4150
BAR LM 14167-4	181	1672	2238	4091
GALM1501	135	1405	2539	4079
Flying A	324	1544	2210	4078
Wax Marshall	193	1594	2276	4063
GA LM 1401	144	1361	2506	4011
TAMTBO	270	1560	2161	3991
Winterhawk	169	1462	2350	3981
Wax M2CVS	192	1749	1934	3875
Fria	214	1514	2139	3867
BAR LM 15476	76	1432	2343	3852
GALM1502	63	1396	2243	3703
GALM1402	161	1513	1991	3664
McKinley	146	1391	2114	3651
BAR LM 15425	308	1607	1708	3623
GALM1503	267	1461	1885	3613
Pennington PS 15	174	1345	2080	3599
GALM1514	59	1297	2168	3524
Andes	202	1482	1748	3432
Pennington PS 12	209	1548	1614	3370
Attain	64	1187	2071	3322
BAR LM 14167-1	183	1374	1718	3275
Jackson	109	1223	1866	3199
GALM1403	201	1421	1475	3098
Passerel Plus	185	1475	1308	2967
Grazer	96	1209	1611	2916
GALM1513	124	1228	1366	2719
Kodiak	113	1173	1331	2618
Trial mean	**206**	**1543**	**2081**	**3831**
LSD (0.1)	**74**	**259**	**374**	**960**
CV (%)	**51**	**24**	**25**	**21**
Pr>F	**0.0001**	**0.0595**	**0.0093**	**0.0079**

Table 6. Gulf Coast Research & Extension Center - Fairhope, AL

	Average Dry Matter Production*		
	1 year	2 year	3 year
Variety	2017	2016-2017	2015-2016
	(lb/Acre)		
Nelson	6460	8157	8861
Wax ME-4	6471	8009	8495
TAMTBO	6829	7822	8292
Fria	5617	7428	8158
Diamond T	6441	7531	8083
Big Boss	6497	7626	8060
Wax ME-94	6096	7348	7988
Flying A	6082	7322	7876
Jackson	5879	6855	7861
Winterhawk	6138	7100	7844
Attain	6245	7030	7804
Passerel Plus	6061	7085	7600
Double Diamond**	6715	7193	7564
GALM1403	6018	6894	7492
Triangle T***	6244	6483	7304
GA LM 1401	5176	6548	7018
Gulf (Local)	3711	5688	6738

*** Ranking based on 3-year average.**

**** Was named TARX 10-1 in previous years**

***** Was named TARX 10-6 in previous years**

Table 7. Plant Breeding Unit - EV Smith Research & Extension Center - Tallassee, AL

There was no ryegrass date for 2016 at PBU, so there are no multi-year averages to report this year.

Table 8. Sand Mountain Research & Extension Center - Crossville, AL

	Average Dry Matter Production*		
	1 year	2 year	3 year
Variety	2017	2016-2017	2015-2016
	(lb/Acre)		
Wax ME-4	9649	8749	7800
Jackson	9378	8413	7785
Nelson	8991	8339	7404
Passerel Plus	8202	7762	7369
Big Boss	7995	7562	7343
Wax ME-94	9477	8073	7273
Diamond T	7941	7936	7245
Fria	9259	8018	7228
Attain	8015	7837	7219
Triangle T***	8573	7762	7144
TAMTBO	8359	7620	7142
Winterhawk	8400	7520	6849
Gulf (Local)	6535	7050	6701
Flying A	7375	7025	6550
Double Diamond**	7325	6871	6313

*** Ranking based on 3-year average.**

**** Was named TARX 10-1 in previous years**

***** Was named TARX 10-6 in previous years**

Table 9. Wiregrass Research & Extension Center - Headland, AL

	Average Dry Matter Production*		
	1 year	2 year	3 year
Variety	2017	2016-2017	2015-2016
	(lb/Acre)		
Big Boss	4437	4882	5302
Nelson	4662	4910	5206
Triangle T***	4313	4580	5077
Wax ME-4	4688	4513	5054
TAMTBO	3991	4468	4994
Diamond T	4315	4509	4772
Flying A	4078	4225	4742
Attain	3322	4214	4704
Wax ME-94	4262	4177	4629
Double Diamond**	4157	4295	4598
Winterhawk	3981	4086	4576
Fria	3867	3864	4506
Jackson	3199	3637	4293
Passerel Plus	2967	3504	4268

*** Ranking based on 3-year average.**

**** Was named TARX 10-1 in previous years**

***** Was named TARX 10-6 in previous years**

Table 10. Gulf Coast Research & Extension Center - Fairhope, AL					
Planting Date:					
10/7/2016	**Dry Matter Yield by Harvest Timing**				
	1st cut	**2nd cut**	**3rd cut**	**4th cut**	**Season**
Variety	**1/31/2017**	**3/2/2017**	**3/30/2017**	**5/3/2017**	**Total**
	(% of total)				
TAMTBO	13	23	29	35	100
Double Diamond	16	23	27	35	100
Jumbo	16	23	28	32	100
Big Boss	14	24	28	34	100
Wax ME-4	14	25	29	32	100
Nelson	16	23	28	34	100
Diamond T	14	25	28	33	100
Pennington PS 15	17	23	28	32	100
BAR LM 15426	15	23	29	33	100
BAR LM 15425	17	23	28	33	100
GALM1515	12	21	33	34	100
Wax Marshall	17	23	29	31	100
Attain	16	22	29	33	100
Triangle T	15	22	28	35	100
BAR LM 14167-4	19	21	26	33	100
McKinley	15	19	30	36	100
WMWL	17	24	29	31	100
BAR LM 15476	13	21	32	35	100
Winterhawk	15	23	31	31	100
Wax ME-94	14	23	30	34	100
GALM1503	15	22	29	34	100
Flying A	17	23	29	31	100
Passerel Plus	15	22	29	34	100
SARG-FL	15	23	30	33	100
GALM1501	14	22	31	33	100
GALM1403	15	23	29	33	100
Pennington PS 12	16	22	26	36	100
BAR LM 14167-1	16	21	29	34	100
Jackson	14	26	31	29	100
Wax M2CVS	14	25	27	33	100
GALM1514	13	21	33	34	100
GALM1513	14	23	28	35	100
Kodiak	18	21	29	32	100
GALM1502	17	21	28	34	100
Andes	15	22	30	34	100
GALM1402	16	22	29	33	100
Fria	16	23	30	31	100
Grazer	13	19	29	39	100
GA LM 1401	17	20	32	30	100
Gulf (Local)	19	20	26	35	100

Table 11. Plant Breeding Unit - EV Smith Research & Extension Center - Tallassee, AL					
Planting Date:					
10/17/2016	**Dry Matter Yield by Harvest Timing**				
	First	**Second**	**Third**	**Fourth**	**Season**
Variety	**1/12/2017**	**2/1/2017**	**3/6/2017**	**4/10/2017**	**Total**
	(% of total)				
Wax ME-4	7	5	44	44	100
Triangle T	7	9	38	45	100
GALM1502	2	4	40	53	100
GALM1403	4	8	48	41	100
Fria	4	7	45	43	100
Passerel Plus	3	8	32	57	100
BAR LM 15425	7	14	37	42	100
GALM1501	5	5	48	42	100
Winterhawk	3	4	48	44	100
GA LM 1401	3	5	51	42	100
TAMTBO	4	7	40	48	100
SARG-FL	5	5	52	38	100
BAR LM 15426	5	14	40	41	100
GALM1402	3	6	43	48	100
WMWL	3	11	26	61	100
GALM1515	5	12	39	45	100
Double Diamond	5	11	43	41	100
Kodiak	6	6	36	51	100
BAR LM 14167-4	4	9	33	54	100
Nelson	6	10	51	33	100
GALM1513	4	7	40	49	100
BAR LM 14167-1	2	6	44	47	100
GALM1503	5	9	38	48	100
Wax ME-94	3	7	44	46	100
Diamond T	6	10	48	36	100
McKinley	4	8	40	48	100
Jackson	3	9	40	48	100
Pennington PS 15	6	8	42	44	100
BAR LM 15476	3	10	40	47	100
Jumbo	6	11	49	34	100
Andes	4	8	44	43	100
Pennington PS 12	7	17	37	39	100
Flying A	6	14	43	37	100
Big Boss	6	14	45	35	100
Attain	7	12	37	44	100
Wax Marshall	6	7	45	42	100
Grazer	3	8	35	54	100
Gulf (Local)	2	4	27	67	100
Wax M2CVS	4	9	42	44	100
GALM1514	4	14	40	43	100

Table 12. Sand Mountain Research & Extension Center - Crossville, AL

Planting Date:			
11/22/2016	Dry Matter Yield by Harvest Timing		
	1st cut	2nd cut	Season
Variety	4/10/2017	5/3/2017	Total
	(% of total)		
Wax M2CVS	44	56	100
Wax ME-4	30	70	100
WMWL	32	68	100
Wax ME-94	32	68	100
Jackson	23	77	100
Fria	30	70	100
GALM1402	28	72	100
Pennington PS 15	35	65	100
Nelson	38	62	100
GALM1503	33	67	100
BAR LM 15476	38	62	100
GALM1403	30	70	100
SARG-FL	36	64	100
Wax Marshall	28	72	100
Kodiak	35	65	100
BAR LM 15425	39	61	100
Triangle T	33	67	100
McKinley	32	68	100
GALM1515	34	66	100
Winterhawk	27	73	100
TAMTBO	35	65	100
Pennington PS 12	35	65	100
GALM1513	32	68	100
Passerel Plus	27	73	100
Grazer	24	76	100
Attain	37	63	100
Andes	31	69	100
Big Boss	36	64	100
Diamond T	35	65	100
Jumbo	32	68	100
BAR LM 14167-4	33	67	100
GALM1514	34	66	100
BAR LM 15426	31	69	100
GALM1502	37	63	100
GALM1501	38	62	100
Flying A	38	62	100
Double Diamond	35	65	100
BAR LM 14167-1	36	64	100
Gulf (Local)	35	65	100
GA LM 1401	32	68	100

Table 13. Wiregrass Research & Extension Center - Headland, AL

Planting Date: 10/4/2016	Dry Matter Yield by Harvest Timing			
	1st cut	2nd cut	3rd cut	Season
Variety	1/12/2017	2/17/2017	3/24/2017	Total
	(% of total)			
Jumbo	6	40	55	100
Wax ME-4	7	42	51	100
Nelson	6	43	52	100
BAR LM 15426	7	39	54	100
WMWL	6	42	52	100
Big Boss	7	39	54	100
SARG-FL	6	39	55	100
Diamond T	7	41	53	100
Triangle T	8	40	52	100
Wax ME-94	5	36	58	100
Double Diamond	7	46	47	100
GALM1515	7	39	54	100
BAR LM 14167-4	4	41	55	100
GALM1501	3	34	62	100
Flying A	8	38	54	100
Wax Marshall	5	39	56	100
GA LM 1401	4	34	62	100
TAMTBO	7	39	54	100
Winterhawk	4	37	59	100
Wax M2CVS	5	45	50	100
Fria	6	39	55	100
BAR LM 15476	2	37	61	100
GALM1502	2	38	61	100
GALM1402	4	41	54	100
McKinley	4	38	58	100
BAR LM 15425	8	44	47	100
GALM1503	7	40	52	100
Pennington PS 15	5	37	58	100
GALM1514	2	37	62	100
Andes	6	43	51	100
Pennington PS 12	6	46	48	100
Attain	2	36	62	100
BAR LM 14167-1	6	42	52	100
Jackson	3	38	58	100
GALM1403	7	46	48	100
Passerel Plus	6	50	44	100
Grazer	3	41	55	100
GALM1513	5	45	50	100
Kodiak	4	45	51	100

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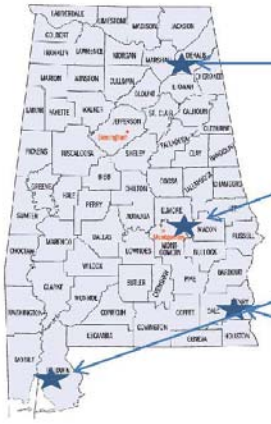

Outlying Units Involved

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Issued in cooperation with the Alabama Cooperative Extension System, Dr. Gary Lemme, Director