

Performance of Ryegrass Varieties in Alabama, 2015-2016



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The Alabama Experiment Station system evaluates variety performance of several crop species each year. Ryegrass studies were conducted in 2015 through 2016 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 2015-16 Ryegrass Variety Trials
Allied Seed LLC, Macon, Missouri
Fria
Barenbrug USA, Tangent, Oregon
Jumbo; Maximus
BAR LM 15425*; BAR LM 15426*; BAR LM 15427*
Local Source, Opelika, AL
Gulf
OreGro Seeds, Inc., Albany, Oregon
Diamond T; Flying A; TAMTBO; Winterhawk;
TARX 10-1*; TARX 10-6*; 07-WW*
Pennington Seed, Inc., Madison, Georgia
Passerel Plus; PS12*; PS15*
Smith Seed Services, Halsey, Oregon
Attain; Big Boss; Kospeed; KoWinearly;
Meroa; PPG-TAR113*
The Wax Company, LLC, Amory, Mississippi
Jackson; Marshall; WAX ME-94; WAX ME-4; Nelson; M2CVS
The University of Georgia, Athens
GA101M*; GALM 1401*; GALM 1403*;
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 2015 – 2016 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.

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

Location	Alabama Exp. Station & soil texture	Trial Years		
		2013-2014	2014-2015	2015-2016
		(planting date)		
Crossville	Sand Mountain Research & Ext. Center Hartselle fine sandy loam	13-Oct-13	25-Sep-14	24-Sep-15
Fairhope	Gulf Coast Research & Ext. Center Malbis fine sandy loam	11-Oct-13	23-Sep-14	22-Sep-15
Headland	Wiregrass Research & Ext. Center Dothan fine sandy loam	16-Oct-13	25-Sep-14	25-Sep-15
Tallassee	Plant Breeding Unit, E.V. Smith Res. Ctr. Cahaba fine sandy loam	11-Oct-13	17-Sep-14	23-Sep-15

Performance of Annual Ryegrass Varieties in Alabama, 2016

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

2015 Dry matter yields

Table 2. Gulf Coast Research & Extension Center, Fairhope, 2016

Table 3. Plant Breeding Unit, E.V. Smith Research Center, Tallassee, 2016

Table 4. Sand Mountain Research & Extension Center, Crossville, 2016

Table 5. Wiregrass Research & Extension Center, Headland, 2016

1-, 2-, and 3-year average yields

Table 6. Gulf Coast Research & Extension Center, Fairhope, 2014 - 2016

Table 7. Plant Breeding Unit, E.V. Smith Research Center, Tallassee, 2014 - 2016

Table 8. Sand Mountain Research & Extension Center, Crossville, 2014 - 2016

Table 9. Wiregrass Research & Extension Center, Headland, 2014 – 2016

Yield distribution X harvest date

Table 10. Gulf Coast Research & Extension Center, Fairhope, 2016

Table 11. Plant Breeding Unit, E.V. Smith Research Center, Tallassee, 2016

Table 12. Sand Mountain Research & Extension Center, Crossville, 2016

Table 13. Wiregrass Research & Extension Center, Headland, 2016

Table 2. Gulf Coast Research & Extension Center - Fairhope, AL

Planting Date: September 22, 2015	Dry Matter Yield by Harvest Timing					
	First 12/7/2015	Second 1/12/2016	Third 2/26/2016	Fourth 3/16/2016	Fifth 4/11/2016	Season Total
Variety	(lb/Acre)					
Nelson	2937	1603	2222	1131	1959	9853
Wax ME-4	2645	1678	2085	1110	2030	9548
Fria	2623	1589	2248	875	1903	9238
M2CVS	2505	1491	1809	990	2291	9085
Meroa	2366	1716	2141	963	1663	8848
TAMTBO	2650	1469	1992	1009	1694	8814
Big Boss	2521	1969	1831	785	1649	8755
GA101M	2499	1457	1836	921	1996	8709
Diamond T	2713	1344	1763	921	1879	8620
Wax ME-94	2098	1399	2054	1006	2043	8600
Flying A	2661	1108	1829	1092	1872	8562
Maximus	2473	1116	2021	1084	1784	8477
GALM1515F	2478	1084	1880	994	1926	8361
Pennington PS 12	2441	1230	1733	1040	1699	8143
KoWinearly	2145	1092	2008	1054	1813	8112
Passerel Plus	2364	1175	1883	819	1867	8109
Winterhawk	2362	1525	1717	765	1694	8062
GA LM 1401	2282	1053	1817	832	1937	7920
Marshall	2367	1279	1621	942	1678	7887
Jackson	2032	1396	1663	952	1787	7832
Attain	2413	1472	1627	748	1555	7816
Jumbo	2367	1474	1659	843	1463	7807
GALM1514A	2250	1341	1711	845	1659	7806
GA LM 1403	2156	1152	1841	915	1707	7771
GALM1513M	1764	1337	1882	824	1895	7702
TARX 10-1	2095	1313	1686	826	1751	7671
BAR LM 15427	1962	1079	1650	1081	1894	7665
Gulf (Local)	2293	1140	1600	770	1862	7664
07-WW	2391	1220	1386	724	1841	7563
Pennington PS 15	2225	1295	1598	813	1583	7515
BAR LM 15425	1756	1150	1519	989	1780	7195
BAR LM 15426	1756	957	1213	1005	1846	6778
TARX 10-6	1409	1269	1663	769	1613	6722
Kospeed	1907	700	.	856	1592	5056
PPG-TAR113	.	.	.	853	1978	2831
LSD (0.1)	271	159	NS	NS	NS	120
Trial Mean	2291	1314	1794	918	1805	7917
CV(%)	17	17	32	27	20	25
Pr>F	0.0001	0.0001	0.9376	0.6146	0.6333	0.0001

*A "." indicates that there was no yield obtained for that variety on that cutting date.

**PPG-TAR113 was not included in the final analysis for total yield.

Table 3. Plant Breeding Unit - EV Smith Research & Extension Center - Tallassee, AL

Ryegrass was planted at the Plant Breeding Unit, but due to harvester problems, there was no harvest data.

Table 4. Sand Mountain Research & Extension Center - Crossville, AL

Planting Date: September 24, 2015	Dry Matter Yield by Harvest Timing				
	First 3/23/2016	Second 4/8/2016	Third 4/26/2016	Fourth 5/24/2016	Season Total
Variety	(lb/Acre)				
GALM1513M	643	1318	2301	3778	8040
Diamond T	630	1172	2350	3779	7930
Wax ME-4	485	1367	2307	3690	7849
GA LM 1403	687	1517	2407	3114	7726
Nelson	515	1328	2075	3769	7687
Attain	649	1380	2246	3384	7660
Gulf (Local)	592	1375	2104	3494	7565
GA101M	335	1296	2284	3579	7493
Jackson	344	1492	2455	3158	7449
GA LM 1401	740	1450	2240	2936	7367
Passerel Plus	652	1541	2214	2914	7321
Big Boss	708	1271	2115	3034	7128
Pennington PS 12	816	1450	2324	2535	7125
07-WW	286	1476	1986	3363	7111
Maximus	407	1281	2368	3041	7096
Pennington PS 15	609	1335	2190	2831	6967
TARX 10-6	548	1425	2129	2849	6951
GALM1515F	478	1363	2140	2933	6914
Marshall	321	1410	2615	2548	6894
TAMTBO	347	1262	2171	3101	6881
KoWinearly	314	1335	2462	2714	6825
Fria	466	1362	2218	2731	6778
Jumbo	355	1238	2121	2985	6700
GALM1514A	707	1181	1963	2844	6695
BAR LM 15426	539	1182	1968	2987	6676
Flying A	644	1294	1974	2762	6674
Wax ME-94	529	1177	2191	2772	6669
Winterhawk	391	1262	2364	2623	6639
Meroa	.	842	2159	3539	6540
BAR LM 15425	.	845	2173	3475	6492
TARX 10-1	375	1216	2005	2821	6417
M2CVS	.	940	2190	3107	6237
BAR LM 15427	.	631	1796	3402	5829
Kospeed	663	1266	2183	1596	5708
PPG-TAR113	.	.	1209	3812	5021
LSD (0.1)	102	139	189	623	167
Trial Mean	475	1273	2172	3086	6944
CV (%)	30	15	12	29	28
Pr>F	0.0001	0.0001	0.0001	0.3578	0.0001

*A "." indicates that there was no yield obtained for that variety on that cutting date.

**PPG-TAR113 was not included in the final analysis for total yield.

Table 5. Wiregrass Research & Extension Center - Headland, AL

Planting Date: September 25, 2015	Dry Matter Yield by Harvest Timing				
	First 12/4/2015	Second 2/12/2016	Third 3/23/2016	Fourth 4/21/2016	Season Total
Variety	(lb/Acre)				
Pennington PS 12	681	1130	1938	1642	5391
Big Boss	748	970	1781	1827	5326
Nelson	770	953	1663	1772	5157
Attain	732	929	1837	1608	5105
GALM1514A	724	860	1684	1765	5032
TAMTBO	637	890	1628	1790	4945
TARX 10-6	588	794	1694	1770	4847
Marshall	500	828	1504	2003	4835
Jumbo	531	873	1579	1752	4735
Pennington PS 15	627	809	1649	1630	4715
Diamond T	672	885	1401	1744	4703
Maximus	670	691	1459	1620	4440
TARX 10-1	482	651	1602	1698	4433
Flying A	706	762	1401	1503	4372
Wax ME-4	635	693	1211	1798	4337
Gulf (Local)	797	756	1457	1274	4285
Winterhawk	432	567	1564	1628	4192
Wax ME-94	567	606	1190	1729	4093
Jackson	602	506	1236	1732	4076
Passerel Plus	591	773	1320	1356	4040
M2CVS	448	518	1092	1958	4017
BAR LM 15426	339	641	1304	1711	3996
GA LM 1401	433	551	1992	1009	3984
GA LM 1403	458	619	1457	1448	3982
Fria	453	452	1468	1487	3860
GALM1515F	458	420	1332	1536	3746
BAR LM 15425	351	521	930	1707	3509
GALM1513M	431	534	961	1571	3497
07-WW	500	488	1095	1407	3490
GA101M	429	568	956	1533	3486
Kospeed	451	394	1793	805	3443
KoWinearly	284	371	1341	1291	3286
BAR LM 15427	402	558	745	1465	3170
Meroa	643	517	705	736	2601
PPG-TAR113	125	28	.	622	776
LSD (0.1)	105	99	138	107	82
Trial Mean	540	660	1411	1541	4111
CV (%)	28	21	14	10	22
Pr>F	0.0001	0.0001	0.0001	0.0001	0.0001

*A "." indicates that there was no yield obtained for that variety on that cutting date.

**PPG-TAR113 was not included in the final analysis for total yield.

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

Variety	Average dry matter production*		
	1-year 2016	2-year 2015-2016	3-year 2014-2016
	(lb/acre)		
Nelson	9853	10022	10079
Wax ME-4	9548	9815	9904
Fria	9238	9555	9661
Jackson	7832	9197	9652
M2CVS	9085	9486	9620
Marshall	7887	9184	9616
Wax ME-94	8600	9112	9283
Diamond T	8620	8905	9219
TAMTBO	8814	9044	9121
Winterhawk	8062	8807	9055
Flying A	8562	8925	9046
Passerel Plus	8109	8565	8717
*Ranking based on 3-year average.			

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

Ryegrass was planted at the Plant Breeding Unit, but due to harvester problems, there was no harvest data.

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

Variety	Average dry matter production*		
	1- Year 2016	2-Year 2015-2016	3-Year 2014-2016
	(lb/acre)		
Jackson	7449	6726	6485
Wax ME-4	7849	6737	6366
Passerel Plus	7321	6529	6265
Marshall	6894	6338	6153
Diamond T	7930	6582	6132
TAMTBO	6881	6157	5916
Wax ME-94	6669	6101	5912
M2CVS	6237	5960	5867
Nelson	7687	6316	5859
Fria	6778	6075	5841
Flying A	6674	5985	5755
07-WW	7111	6158	5749
Winterhawk	6639	5873	5618

*Ranking based on 3-year average.

Table 9. Wiregrass Research & Extension Center, Headland AL

Variety	Average dry matter production*		
	1-Year 2016	2-Year 2015-2016	3-Year 2014-2016
	(lb/acre)		
TAMTBO	4945	5496	6169
Marshall	4835	5361	6067
Nelson	5157	5477	5983
Wax ME-4	4337	5236	5923
Flying A	4372	5075	5793
Diamond T	4703	5001	5672
Passerel Plus	4040	4918	5667
Fria	3860	4825	5604
Wax ME-94	4093	4813	5580
M2CVS	4017	4893	5493
Jackson	4076	4840	5460
Winterhawk	4192	4874	5424
07-WW	3490	4481	5076

* Ranking based on 3-year average

Table 10. Gulf Coast Research & Extension Center - Fairhope, AL

Planting Date: September 22, 2015	Dry Matter Yield by Harvest Timing					
	First 12/7/2015	Second 1/12/2016	Third 2/26/2016	Fourth 3/16/2016	Fifth 4/11/2016	Season Total
Variety	(% of total)					
Nelson	30	16	23	11	20	100
Wax ME-4	28	18	22	12	21	100
Fria	28	17	24	9	21	100
M2CVS	28	16	20	11	25	100
Meroa	27	19	24	11	19	100
TAMTBO	30	17	23	11	19	100
Big Boss	29	22	21	9	19	100
GA101M	29	17	21	11	23	100
Diamond T	31	16	20	11	22	100
Wax ME-94	24	16	24	12	24	100
Flying A	31	13	21	13	22	100
Maximus	29	13	24	13	21	100
GALM1515F	30	13	22	12	23	100
Pennington PS 12	30	15	21	13	21	100
KoWinearly	26	13	25	13	22	100
Passerel Plus	29	14	23	10	23	100
Winterhawk	29	19	21	9	21	100
GA LM 1401	29	13	23	11	24	100
Marshall	30	16	21	12	21	100
Jackson	26	18	21	12	23	100
Attain	31	19	21	10	20	100
Jumbo	30	19	21	11	19	100
GALM1514A	29	17	22	11	21	100
GA LM 1403	28	15	24	12	22	100
GALM1513M	23	17	24	11	25	100
TARX 10-1	27	17	22	11	23	100
BAR LM 15427	26	14	22	14	25	100
Gulf (Local)	30	15	21	10	24	100
07-WW	32	16	18	10	24	100
Pennington PS 15	30	17	21	11	21	100
BAR LM 15425	24	16	21	14	25	100
BAR LM 15426	26	14	18	15	27	100
TARX 10-6	21	19	25	11	24	100
Kospeed	38	14	.	17	31	100
PPG-TAR113	.	.	.	30	70	100

*A "." indicates that there was no yield obtained for that variety on that cutting date.

Table 11. Plant Breeding Unit - EV Smith Research & Extension Center - Tallassee, AL

Ryegrass was planted at the Plant Breeding Unit, but due to harvester problems, there was no harvest data.

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

Planting Date:	Dry Matter Yield by Harvest Timing				
	First	Second	Third	Fourth	Season
September 24, 2015	3/23/2016	4/8/2016	4/26/2016	5/24/2016	Total
Variety	(% of total)				
GALM1513M	8	16	29	47	100
Diamond T	8	15	30	48	100
Wax ME-4	6	17	29	47	100
GA LM 1403	9	20	31	40	100
Nelson	7	17	27	49	100
Attain	8	18	29	44	100
Gulf (Local)	8	18	28	46	100
GA101M	4	17	30	48	100
Jackson	5	20	33	42	100
GA LM 1401	10	20	30	40	100
Passerel Plus	9	21	30	40	100
Big Boss	10	18	30	43	100
Pennington PS 12	11	20	33	36	100
07-WW	4	21	28	47	100
Maximus	6	18	33	43	100
Pennington PS 15	9	19	31	41	100
TARX 10-6	8	21	31	41	100
GALM1515F	7	20	31	42	100
Marshall	5	20	38	37	100
TAMTBO	5	18	32	45	100
KoWinearly	5	20	36	40	100
Fria	7	20	33	40	100
Jumbo	5	18	32	45	100
GALM1514A	11	18	29	42	100
BAR LM 15426	8	18	29	45	100
Flying A	10	19	30	41	100
Wax ME-94	8	18	33	42	100
Winterhawk	6	19	36	40	100
Meroa	.	13	33	54	100
BAR LM 15425	.	13	33	54	100
TARX 10-1	6	19	31	44	100
M2CVS	.	15	35	50	100
BAR LM 15427	.	11	31	58	100
Kospeed	12	22	38	28	100
PPG-TAR113	.	.	24	76	100

*A "." indicates that there was no yield obtained for that variety on that cutting date.

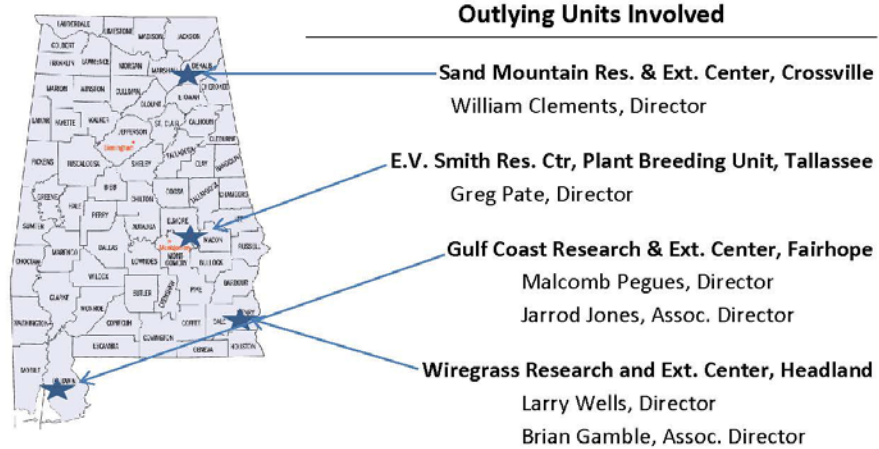
Table 13. Wiregrass Research & Extension Center - Headland, AL

Planting Date: September 25, 2015	Dry Matter Yield by Harvest Timing				
	First 12/4/2015	Second 2/12/2016	Third 3/23/2016	Fourth 4/21/2016	Season Total
Variety	(% of total)				
Pennington PS 12	13	21	36	30	100
Big Boss	14	18	33	34	100
Nelson	15	18	32	34	100
Attain	14	18	36	31	100
GALM1514A	14	17	33	35	100
TAMTBO	13	18	33	36	100
TARX 10-6	12	16	35	37	100
Marshall	10	17	31	41	100
Jumbo	11	18	33	37	100
Pennington PS 15	13	17	35	35	100
Diamond T	14	19	30	37	100
Maximus	15	16	33	36	100
TARX 10-1	11	15	36	38	100
Flying A	16	17	32	34	100
Wax ME-4	15	16	28	41	100
Gulf (Local)	19	18	34	30	100
Winterhawk	10	14	37	39	100
Wax ME-94	14	15	29	42	100
Jackson	15	12	30	43	100
Passerel Plus	15	19	33	34	100
M2CVS	11	13	27	49	100
BAR LM 15426	8	16	33	43	100
GA LM 1401	11	14	50	25	100
GA LM 1403	12	16	37	36	100
Fria	12	12	38	39	100
GALM1515F	12	11	36	41	100
BAR LM 15425	10	15	26	49	100
GALM1513M	12	15	27	45	100
07-WW	14	14	31	40	100
GA101M	12	16	27	44	100
Kospeed	13	11	52	23	100
KoWinearly	9	11	41	39	100
BAR LM 15427	13	18	24	46	100
Meroa	25	20	27	28	100
PPG-TAR113	16	4	.	80	100

*A "." indicates that there was no yield obtained for that variety on that cutting date.

Acknowledgements

We would like to express our appreciation for the work and dedication of the supervisory and staff personnel of the Alabama Experiment Station outlying units without whom this work would not be possible. Thanks are also expressed to the producers and citizens of Alabama for supporting research on the production of food and fiber across our state.



Map source: http://commons.wikimedia.org/wiki/File:Alabama_counties_map.png



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