

Performance of Ryegrass Varieties in Alabama, 2017-2018



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The Alabama Experiment Station system evaluates variety performance of several crop species each year. Ryegrass studies were conducted in 2017 through 2018 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 2017-18 Ryegrass Variety Trials
Allied Seed LLC, Macon, Missouri
Fria
Barenbrug USA, Tangent, Oregon
Jumbo; Maximus; Ribeye; BAR LM 17477*; BAR LM 17531*; BAR LM 17532*; BAR LM 17534*; BAR LM 17490-3*; BAR LM 17490-4*; BAR LM 17514*; BAR LM 17538*
DLF Pickseed USA, Halsey Oregon
Angusta; Kodiak; McKinley
Grassland Oregon, Salem Oregon
Lonestar; TetraStar; ARC 17
Lewis Seed, Shedd, Oregon
Grits; LSC-B1191
Pennington Seed, Inc., Madison, Georgia
Passerel Plus; PS12*; PS15*
Smith Seed Services, Halsey, Oregon
Attain; Big Boss; Koga; FrostProof (was 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 1513*; GALM 1514*; GALM 1515*

* Experimental varieties

Methods

Ryegrass entries were seeded at 20 lb/acre in 7-inch rows (Table 1). Plots were 5 x 20 ft with three to four replications of each entry arranged in a randomized complete block experimental design. The 2017 – 2018 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 plot forage 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 Tallassee, no useful trial data was taken due to slow emergence, then weeds outgrew ryegrass.

Table 1. Planting dates and soil textures for Alabama ryegrass trial locations. (Target planting date was 15-Sept to 15-Oct, but several plantings were delayed due to soil conditions.)

		Trial Years		
Location	Alabama Exp. Station & soil texture	2015-2016	2016-2017	2017-2018
		(planting date)		
Crossville	Sand Mountain Research & Ext. Center Hartselle fine sandy loam	24-Sep-15	22-Nov-16	28-Nov-17
Fairhope	Gulf Coast Research & Ext. Center Malbis fine sandy loam	22-Sep-15	7-Oct-16	7-Nov-17
Headland	Wiregrass Research & Ext. Center Dothan fine sandy loam	25-Sep-15	4-Oct-16	26-Oct-17
Tallassee	Plant Breeding Unit, E.V. Smith Res. Ctr. Cahaba fine sandy loam	23-Sep-15	17-Oct-16	18-Sep-17

Performance of Annual Ryegrass Varieties in Alabama, 2018

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

2017-2018 Dry matter yields

Table 2. Gulf Coast Research & Extension Center, Fairhope, 2018

Table 3. Plant Breeding Unit, E.V. Smith Research Center, Tallassee, 2018

Table 4. Sand Mountain Research & Extension Center, Crossville, 2018

Table 5. Wiregrass Research & Extension Center, Headland, 2018

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

Table 6. Gulf Coast Research & Extension Center, Fairhope, 2016 - 2018

Table 7. Plant Breeding Unit, E.V. Smith Research Center, Tallassee, 2016 - 2018

Table 8. Sand Mountain Research & Extension Center, Crossville, 2016 - 2018

Table 9. Wiregrass Research & Extension Center, Headland, 2016 - 2018

Yield distribution X harvest date

Table 10. Gulf Coast Research & Extension Center, Fairhope, 2018

Table 11. Plant Breeding Unit, E.V. Smith Research Center, Tallassee, 2018

Table 12. Sand Mountain Research & Extension Center, Crossville, 2018

Table 13. Wiregrass Research & Extension Center, Headland, 2018

Table 2. Gulf Coast Research & Extension Center - Fairhope, AL				
Planting Date:				
11/7/2017	Dry Matter Yield by Harvest Timing			
	1	2	3	Season
Variety	2/20/2018	3/9/2018	4/3/2018	Total
	(lb/Acre)			
M2CVS	1897	1327	1593	4817
Passerel Plus	1570	1370	1589	4528
Wax ME-4	1838	1285	1382	4505
Wax Marshall	1626	1305	1502	4433
GALM 1403	1770	1156	1483	4409
BAR LM 17490-3	1594	1214	1561	4369
Fria	1803	1125	1408	4336
GALM1501	1606	1041	1559	4207
GALM 1401	1812	924	1446	4183
GALM1503	1604	1189	1363	4156
GALM1515	1557	1070	1527	4154
LSC-B1191	1487	1102	1537	4126
Maximus	1439	1139	1530	4108
Ribeye	1561	1146	1397	4105
WMWL	1601	1222	1276	4099
Lonestar	1640	1092	1350	4081
Nelson	1491	1116	1444	4051
Grits	1714	1006	1311	4031
ARC 17	1666	1037	1312	4014
Jumbo	1469	1202	1342	4012
Jackson	1413	1138	1461	4011
Big Boss	1486	1176	1311	3973
Wax ME-94	1427	1225	1319	3971
Pennington PS 12	1476	1091	1354	3921
GALM1502	1446	1112	1361	3919
Pennington PS 15	1501	1081	1334	3917
Tetrastar	1538	985	1344	3867
GALM1514	1411	1106	1337	3854
Grazer	1464	1084	1291	3839
FrostProof	1368	1029	1428	3824
GALM 1402	1472	1026	1315	3813
BAR LM 17534	1392	1056	1337	3785
Attain	1456	1004	1303	3763
GALM1513	1347	1032	1381	3759
BAR LM 17490-4	1208	1098	1449	3755
BAR LM 17531	1184	1109	1378	3670
Angusta	1275	1010	1335	3620
BAR LM 17538	1013	1113	1425	3550
BAR LM 17477	1164	1102	1234	3501
BAR LM 17514	1176	1008	1292	3475
Koga	1155	1027	1185	3367
BAR LM 17532	1110	1003	1226	3339
Trial mean	1481	1112	1388	3981
LSD (0.1)	180	108	119	110
CV (%)	17	14	12	20
Pr>F	0.0001	0.0218	0.0629	0.0013

Table 3. E.V. Smith Plant Breeding Unit – Tallassee, AL

Crop Failure – No Data

Table 4. Sand Mountain Research & Extension Center - Crossville, AL				
Planting Date:				
11/28/2017	Dry Matter Yield by Harvest Timing			
	1	2*	3*	Season
Variety	4/19/2018	5/8/2018	6/20/2018	Total
	(lbs/Acre)			
GALM 1401	2612	-	-	2612
FrostProof	2582	-	-	2582
Grits	2484	-	-	2484
Nelson	2347	-	-	2347
Ribeye	2307	-	-	2307
Angusta	2305	-	-	2305
Wax ME-4	2252	-	-	2252
Fria	2187	-	-	2187
Wax Marshall	2102	-	-	2102
LSC-B1191	2085	-	-	2085
WMWL	2070	-	-	2070
BAR LM 17514	2049	-	-	2049
Wax ME-94	2017	-	-	2017
BAR LM 17477	1990	-	-	1990
McKinley	1965	-	-	1965
GALM1501	1842	-	-	1842
Kodiak	1821	-	-	1821
GALM1513	1790	-	-	1790
Attain	1740	-	-	1740
BAR LM 17534	1739	-	-	1739
Passerel Plus	1698	-	-	1698
BAR LM 17538	1667	-	-	1667
Koga	1654	-	-	1654
Grazer	1620	-	-	1620
GALM 1402	1559	-	-	1559
ARC 17	1533	-	-	1533
Jumbo	1525	-	-	1525
Pennington PS 15	1520	-	-	1520
Lonestar	1460	-	-	1460
GALM 1403	1423	-	-	1423
GALM1502	1336	-	-	1336
GALM1514	1317	-	-	1317
Big Boss	1313	-	-	1313
GALM1515	1267	-	-	1267
Maximus	1203	-	-	1203
Jackson	1130	-	-	1130
M2CVS	1079	-	-	1079
BAR LM 17532	1041	-	-	1041
GALM1503	1006	-	-	1006
BAR LM 17531	930	-	-	930
BAR LM 17490-4	878	-	-	878
BAR LM 17490-3	820	-	-	820
Tetrastar	770	-	-	770
Pennington PS 12	474	-	-	474
Trial mean	1648	*	*	
LSD (0.1)	365			
CV (%)	31			
Pr>F	0.0001			

*Due to a scale malfunction which was discovered post-harvest, data from ryegrass harvests 2 and 3 are not considered reliable and are not reported.

Table 5. Wiregrass Research & Extension Center - Headland, AL					
Planting Date:					
10/26/2017	Dry Matter Yield by Harvest Timing				
	1	2	3	4	Season
Variety	1/24/2018	2/22/2018	3/27/2018	4/27/2018	Total
	(lbs/Acre)				
Lonestar	1159	961	2894	2325	7338
Pennington PS 12	1146	1059	2874	2235	7313
GALM1502	847	937	2989	2483	7257
Wax ME-94	885	832	3220	2300	7236
Big Boss	965	902	2866	2473	7207
Wax ME-4	944	948	3030	2260	7182
GALM 1402	1166	967	2646	2347	7126
Pennington PS 15	1000	935	2900	2265	7100
Nelson	808	872	2828	2588	7096
GALM 1403	1025	882	3126	2009	7042
Jumbo	739	888	2931	2447	7005
FrostProof	708	938	3176	2139	6961
Attain	952	855	2797	2353	6957
GALM 1401	810	1102	3084	1924	6921
Jackson	581	838	3154	2306	6880
Ribeye	927	995	3051	1894	6867
Maximus	852	1003	2636	2286	6777
Grits	476	962	3211	2103	6752
Fria	805	1034	2867	2032	6738
GALM1514	868	889	2641	2332	6730
Grazer	1105	974	2761	1866	6706
Wax Marshall	863	782	2936	2122	6703
TetraStar	816	985	2685	2211	6696
LSC-B1191	643	958	3027	2053	6682
GALM1513	698	840	3075	2021	6634
WMWL	878	920	3167	1644	6609
BAR LM 17477	743	880	2779	2204	6606
GALM1503	889	950	3034	1728	6601
Angusta	521	871	2937	2259	6588
GALM1501	773	985	2870	1927	6555
GALM1515	646	839	3135	1900	6520
M2CVS	575	759	2952	2219	6505
Passerel Plus	773	728	2759	2160	6419
BAR LM 17514	893	815	2366	2295	6369
BAR LM 17490-4	664	696	2933	1979	6272
BAR LM 17534	622	853	2517	2201	6193
BAR LM 17531	690	673	2394	2377	6134
BAR LM 17538	577	650	2524	2364	6115
ARC 17	494	706	2673	1989	5862
BAR LM 17490-3	438	714	2630	2064	5845
BAR LM 17532	528	640	2334	2284	5786
Koga	634	529	2321	1909	5393
Trial mean	789	870	2851	2164	6673
LSD (0.1)	165	74	183	148	308
CV (%)	30	12	9	10	7
Pr>F	0.0001	0.0001	0.0001	0.0001	0.0001

Table 6. Gulf Coast Research & Extension Center - Fairhope, AL			
	Average Dry Matter Production*		
	1 year	2 year	3 year
Variety	2018	2017-2018	2016-2018
	(lbs/Acre)		
Fria	4336	6611	7486
Wax ME-4	4505	5488	6841
Nelson	4051	5256	6788
Big Boss	3973	5235	6408
Wax ME-94	3971	5034	6222
GALM1403	4409	5213	6066
Jackson	4011	4945	5907
Attain	3763	5004	5941
GA LM 1401	4183	4679	5760
* Ranking based on 3-year average			

Table 7. E.V. Smith Plant Breeding Unit – Tallassee, AL

Crop Failure – No Data

Table 8. Sand Mountain Research & Extension Center - Crossville, AL			
Average Dry Matter Production*			
	1 year	2 year	3 year
Variety	2018	2017-2018	2016-2018
(lbs/Acre)			
Nelson	2347	2892	2099
Wax ME-4	2252	2361	1871
Wax ME-94	2017	2446	1870
Fria	2187	2468	1801
Attain	1740	2361	1790
Big Boss	1313	2097	1634
Wax Marshall	2102	2286	1628
Passerel Plus	1698	1943	1513
Jackson	1130	1637	1206
* Averages based on 1st cuts only, ranked by 3 year averages			

Table 9. Wiregrass Research & Extension Center - Headland, AL			
Average Dry Matter Production*			
	1 year	2 year	3 year
Variety	2018	2017-2018	2016-2018
(lbs/Acre)			
Attain	7207	5822	5657
Big Boss	7096	5879	5639
Fria	7182	5935	5403
Jackson	7236	5749	5197
Nelson	6957	5140	5128
Passerel Plus	6738	5303	4822
Wax ME-4	6880	5039	4718
Wax ME-94	6419	4693	4475
* Ranking based on 3-year average			

Table 10. Gulf Coast Research & Extension Center - Fairhope, AL				
Planting Date:				
11/7/2017	Dry Matter Yield by Harvest Timing			
	1	2	3	Season
Variety	2/20/2018	3/9/2018	4/3/2018	Total
	(% of total)			
Fria	39	28	33	100
M2CVS	35	30	35	100
Passerel Plus	41	29	31	100
Wax ME-4	37	29	34	100
Wax Marshall	40	26	34	100
GALM 1403	36	28	36	100
BAR LM 17490-3	42	26	32	100
GALM1501	38	25	37	100
GALM 1401	43	22	35	100
GALM1503	39	29	33	100
GALM1515	37	26	37	100
LSC-B1191	36	27	37	100
Maximus	35	28	37	100
Ribeye	38	28	34	100
WMWL	39	30	31	100
Lonestar	40	27	33	100
Nelson	37	28	36	100
Grits	43	25	33	100
ARC 17	41	26	33	100
Jumbo	37	30	33	100
Jackson	35	28	36	100
Big Boss	37	30	33	100
Wax ME-94	36	31	33	100
Pennington PS 12	38	28	35	100
GALM1502	37	28	35	100
Pennington PS 15	38	28	34	100
Tetrastar	40	25	35	100
GALM1514	37	29	35	100
Grazer	38	28	34	100
FrostProof	36	27	37	100
GALM 1402	39	27	34	100
BAR LM 17534	37	28	35	100
Attain	39	27	35	100
GALM1513	36	27	37	100
BAR LM 17490-4	32	29	39	100
BAR LM 17531	32	30	38	100
Angusta	35	28	37	100
BAR LM 17538	29	31	40	100
BAR LM 17477	33	31	35	100
BAR LM 17514	34	29	37	100
Koga	34	31	35	100
BAR LM 17532	33	30	37	100

Table 11. E.V. Smith Plant Breeding Unit – Tallassee, AL

Crop Failure – No Data

Table 12. Sand Mountain Research & Extension Center - Crossville, AL				
Planting Date:				
11/28/2017	Dry Matter Yield by Harvest Timing			
	1	2	3	Season
Variety	4/19/2018	5/8/2018	6/20/2018	Total
	(% of total)			
Wax ME-4	100	-	-	-
Grazer	100	-	-	-
Nelson	100	-	-	-
Grits	100	-	-	-
Wax ME-94	100	-	-	-
BAR LM 17490-3	100	-	-	-
GALM 1401	100	-	-	-
GALM1501	100	-	-	-
Wax Marshall	100	-	-	-
McKinley	100	-	-	-
Passerel Plus	100	-	-	-
WMWL	100	-	-	-
Koga	100	-	-	-
Fria	100	-	-	-
Kodiak	100	-	-	-
BAR LM 17534	100	-	-	-
FrostProof	100	-	-	-
BAR LM 17477	100	-	-	-
BAR LM 17490-4	100	-	-	-
Angusta	100	-	-	-
BAR LM 17532	100	-	-	-
GALM1502	100	-	-	-
Ribeye	100	-	-	-
Attain	100	-	-	-
Maximus	100	-	-	-
LSC-B1191	100	-	-	-
ARC 17	100	-	-	-
BAR LM 17531	100	-	-	-
GALM1514	100	-	-	-
GALM 1403	100	-	-	-
Lonestar	100	-	-	-
Jumbo	100	-	-	-
Jackson	100	-	-	-
Pennington PS 15	100	-	-	-
Big Boss	100	-	-	-
BAR LM 17514	100	-	-	-
GALM1515	100	-	-	-
GALM1503	100	-	-	-
GALM1513	100	-	-	-
M2CVS	100	-	-	-
Tetrastar	100	-	-	-
BAR LM 17538	100	-	-	-
GALM 1402	100	-	-	-
Pennington PS 12	100	-	-	-

Table 13. Wiregrass Research & Extension Center - Headland, AL					
Planting Date:					
10/26/2017	Dry Matter Yield by Harvest Timing				
	1	2	3	4	Season
Variety	1/24/2018	2/22/2018	3/27/2018	4/27/2018	Total
	(% of total)				
Lonestar	16	13	39	32	100
Pennington PS 12	16	14	39	31	100
GALM1502	12	13	41	34	100
Wax ME-94	12	11	44	32	100
Big Boss	13	13	40	34	100
Wax ME-4	13	13	42	31	100
GALM 1402	16	14	37	33	100
Pennington PS 15	14	13	41	32	100
Nelson	11	12	40	36	100
GALM 1403	15	13	44	29	100
Jumbo	11	13	42	35	100
FrostProof	10	13	46	31	100
Attain	14	12	40	34	100
GALM 1401	12	16	45	28	100
Jackson	8	12	46	34	100
Ribeye	14	14	44	28	100
Maximus	13	15	39	34	100
Grits	7	14	48	31	100
Fria	12	15	43	30	100
GALM1514	13	13	39	35	100
Grazer	16	15	41	28	100
Wax Marshall	13	12	44	32	100
Tetrastar	12	15	40	33	100
LSC-B1191	10	14	45	31	100
GALM1513	11	13	46	30	100
WMWL	13	14	48	25	100
BAR LM 17477	11	13	42	33	100
GALM1503	13	14	46	26	100
Angusta	8	13	45	34	100
GALM1501	12	15	44	29	100
GALM1515	10	13	48	29	100
M2CVS	9	12	45	34	100
Passerel Plus	12	11	43	34	100
BAR LM 17514	14	13	37	36	100
BAR LM 17490-4	11	11	47	32	100
BAR LM 17534	10	14	41	36	100
BAR LM 17531	11	11	39	39	100
BAR LM 17538	9	11	41	39	100
ARC 17	8	12	46	34	100
BAR LM 17490-3	7	12	45	35	100
BAR LM 17532	9	11	40	39	100
Koga	12	10	43	35	100

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Outlying Units Involved

Sand Mountain Res. & Ext. Center, Crossville
William Clements, Director

E.V. Smith Res. Ctr, Plant Breeding Unit, Tallapoosa
Greg Pate, Director

Gulf Coast Research & Ext. Center, Fairhope
Malcomb Pegues, Director
Jarrod Jones, Assoc. Director

Wiregrass Research and Ext. Center, Headland
Larry Wells, Director
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