

*Performance
of Ryegrass
Varieties in
Alabama,
2003-04*

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PERFORMANCE OF RYEGRASS VARIETIES IN ALABAMA, 2003-04

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INTRODUCTION

The Alabama Ryegrass Variety Evaluation is a continuing evaluation 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 that control each variety or line, not by Alabama Agricultural Experiment Station personnel. The experiments are conducted by experiment station personnel and the results are presented in a fair and unbiased manner.

PROCEDURE

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. Acceptable stands were obtained at the following locations: Sand Mountain Research and Extension Center, Crossville; E.V. Smith Research Center, Plant Breeding Unit, Tallassee; Wiregrass Research and Extension Center, Headland and Gulf Coast Research and Extension Center, 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 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 2003, the tests were planted September 30, October 2, October 15, and October 17 at Crossville, Tallassee, Headland, and Fairhope, respectively. In 2002, the tests were planted October 23, October 10, October 17, and October 22 at Crossville, Tallassee, Headland, and Fairhope, respectively.

DISCUSSION

Strategies to meet seasonal forage needs are an important consideration for livestock producers. Tables 1-5 provide yield data by harvest for 2003-04 at a given location, while Tables 6 and 7 show 1, 2, and 3-year total yields by location. Seasonal and total dry matter yields by locations are provided in Tables 8 and 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.

TABLE 1. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE SAND MOUNTAIN RESEARCH AND EXTENSION CENTER, CROSSVILLE, ALABAMA, 2004.

Cultivar	Yield by harvest date							Season total
	12/8	2/3	3/10	3/29	4/15	4/29	5/20	
	----- lbs per acre -----							
Flying A	1608	1742	2668	2554	1603	2041	2029	14244
Wax ME-94	1611	1296	2449	2591	2018	1872	2350	14187
Passerel Plus	1615	1435	2351	2484	1960	1906	2335	14087
Rio	2071	1640	2632	2502	1447	1631	2084	14007
Brigadier	1518	1457	2841	2585	1476	1871	2091	13838
Marshall	1633	1127	2315	2864	2025	1748	1927	13640
TXR 2001-11	1212	1232	2665	2645	1836	2040	2000	13630
WMN 97	1348	1053	2191	2637	1988	2092	2308	13616
Gulf (Source A)	1586	1610	2510	2581	1381	2291	1631	13589
Tam 90	1766	1504	2621	2232	1469	1865	2070	13527
WD- 40	1673	1495	2850	2205	1379	2012	1794	13408
Jackson	1526	1251	2629	2577	1654	1907	1832	13375
Ed	1102	1396	2689	2513	1441	1873	1921	12935
FL/NE X 2002 (New 2) LRCT	1284	1062	2447	2614	1716	1678	1959	12759
Prine	1765	1359	2286	2671	1608	1430	1511	12629
LM 9929D	1889	1431	2398	1381	1477	1632	2403	12611
4X	1377	1177	2588	2348	1620	1423	1929	12462
FL X2003 (G)4X LRLS	1663	1595	2748	2126	1072	1407	1849	12460
Ducado	1509	1390	2904	2413	1336	1199	1637	12388
FL X2003 (New 2)ER	1598	1724	2839	1905	1025	1714	1577	12381
Diamond T	1610	1306	2591	2364	1290	1496	1375	12033
Shiwasuaba	2161	1145	2096	1817	980	1779	1791	11767
Test Mean	1597	1383	2559	2391	1536	1768	1927	13162
C.V. (%)	18	14	14	12	15	14	23	6
LSD(0.10)	289	187	332	255	215	240	429	809

Planted: 9/30/2003

Soil: Hartsells Fine Sandy Loam

TABLE 2. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE BLACK BELT RESEARCH AND EXTENSION CENTER, MARION JUNCTION, 2004.

Cultivar	Yield by harvest date					Season total
	3/15	5/6	†	†	†	
	----- lbs per acre -----					
Wax ME-94	2565	4516	---	---	---	7082
Rio	2746	3656	---	---	---	6402
Passerel Plus	1881	4511	---	---	---	6391
Jumbo	1967	4313	---	---	---	6280
Prine	2138	4129	---	---	---	6267
Ed	2609	3598	---	---	---	6207
Jackson	1959	4229	---	---	---	6188
Gulf (Source A)	2221	3927	---	---	---	6148
WMN 97	1875	4007	---	---	---	5883
Marshall	1828	3597	---	---	---	5425
Test Mean	2179	4048				6227
C.V. (%)	9	11				7
LSD(0.10)	267	442				509

Planted: 10/23/2003

Soil: Houston Clay

† only two cuts taken at this location

This location added on a trial basis.

TABLE 3. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE E.V. SMITH RESEARCH CENTER, PLANT BREEDING UNIT, TALLASSEE, 2004.

Cultivar	Yield by harvest date							Season total
	12/8	3/11	4/5	†	†	†	†	
----- lbs per acre -----								
Flying A	889	958	1154	---	---	---	---	3001
FL X2003 (New 2)ER	728	1007	1074	---	---	---	---	2810
Shiwasuaba	755	1469	550	---	---	---	---	2774
Brigadier	806	804	1143	---	---	---	---	2753
Rio	822	767	1134	---	---	---	---	2722
Jackson	678	676	1350	---	---	---	---	2704
Tam 90	805	840	1039	---	---	---	---	2684
Wax ME-94	847	758	1078	---	---	---	---	2683
Ducado	733	889	1057	---	---	---	---	2679
Ed	818	744	1094	---	---	---	---	2656
Ribeye	505	832	1273	---	---	---	---	2610
WD- 40	667	791	1145	---	---	---	---	2604
Marshall	867	634	1102	---	---	---	---	2603
Prine	761	785	1027	---	---	---	---	2572
Diamond T	641	939	992	---	---	---	---	2571
Gulf (Source A)	468	781	1285	---	---	---	---	2535
Jumbo	728	670	1107	---	---	---	---	2505
FL/NE X 2002 (New 2) LRCT	666	681	1145	---	---	---	---	2492
BAR9TAM	758	664	975	---	---	---	---	2397
FL X2002 (New 3) LRCT	521	690	1127	---	---	---	---	2337
FL X2003 (G)4X LRLS	543	725	1048	---	---	---	---	2317
4X	578	729	992	---	---	---	---	2300
TXR 2001-11	547	494	1148	---	---	---	---	2189
Passerel Plus	633	573	892	---	---	---	---	2098
WMN 97	570	428	1054	---	---	---	---	2053
LM 9929D	737	600	647	---	---	---	---	1984
Test Mean	695	766	1063					2524
C.V. (%)	24	25	15					14
LSD(0.10)	208	197	184					451

Planted: 10/2/2003

Soil: Cahaba Fine Sandy Loam

† only three cuts taken at this location

TABLE 4. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE WIREGRASS RESEARCH AND EXTENSION CENTER, HEADLAND, ALABAMA, 2004.

Cultivar	Yield by harvest date							Season total
	1/12	2/19	3/9	4/6	5/5	†	†	
	----- lbs per acre -----							
Diamond T	1157	1914	2698	1294	1230	---	---	8293
FL X2003 (G)4X LRLS	761	2147	2735	1297	1203	---	---	8143
Prine	938	1568	2707	1622	1275	---	---	8111
4X	843	1773	2463	1625	1195	---	---	7899
Wax ME-94	640	1553	2644	1458	1354	---	---	7649
Flying A	910	1549	2513	1345	1194	---	---	7510
Ed	776	1575	2562	1223	1122	---	---	7257
Gulf (Source A)	472	1622	2697	1415	1031	---	---	7237
Shiwasuaba	1265	2659	1569	1133	544	---	---	7170
WD- 40	885	1556	2561	1342	748	---	---	7092
FL X2003 (New 2)ER	561	2019	2440	1159	912	---	---	7091
FL/NE X 2002 (New 2) LRCT	486	1359	2633	1353	1255	---	---	7087
Marshall	738	1107	2342	1590	1289	---	---	7066
Brigadier	552	1446	2631	1219	1122	---	---	6970
Tam 90	733	1590	2385	1033	994	---	---	6735
Jackson	415	1247	2710	1197	1149	---	---	6718
Passerel Plus	639	1045	2258	1346	1367	---	---	6655
Ducado	455	1543	2628	1026	954	---	---	6606
TXR 2001-11	351	1248	2533	1336	1124	---	---	6592
Rio	539	1119	2429	1002	1217	---	---	6306
WMN 97	497	870	2282	1420	1135	---	---	6204
LM 9929D	521	1130	1714	1026	606	---	---	4998
Test Mean	688	1529	2461	1294	1092			7063
C.V. (%)	27	19	8	10	15			6
LSD(0.10)	175	262	180	123	160			410

Planted: 10/15/2003

Soil: Dothan Fine Sandy Loam

† only five cuts taken at this location

TABLE 5. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE GULF COAST RESEARCH AND EXTENSION CENTER, FAIRHOPE, ALABAMA, 2004.

Cultivar	Yield by harvest date							Season total
	12/18	1/21	2/23	3/15	4/1	†	†	
	----- lbs per acre -----							
Shiwasuaba	1325	1348	1666	1124	1238	---	---	6702
LM 9929D	1539	1247	1540	1062	1197	---	---	6584
Brigadier	1299	1228	1754	1207	1073	---	---	6560
Ducado	1581	1224	1388	1125	1123	---	---	6442
BAR9TAM	1184	1291	1648	1122	1189	---	---	6434
FL/NE X 2002 (New 2) LRCT	1324	1165	1647	1091	1177	---	---	6404
Diamond T	1330	1246	1599	1024	1178	---	---	6377
Marshall	1429	1168	1434	1053	1290	---	---	6375
Wax ME-94	1246	1448	1454	1061	1120	---	---	6328
Ed	1322	1171	1432	1104	1253	---	---	6282
WMN 97	1494	1180	1244	1061	1168	---	---	6146
FL X2002 (New 3) LRCT	1259	1174	1226	1102	1386	---	---	6146
TXR 2001-11	1260	1190	1441	1034	1219	---	---	6144
4X	1258	1100	1308	1203	1241	---	---	6110
Prine	1314	1289	1286	1068	1143	---	---	6100
Jackson	1450	1145	1206	1046	1240	---	---	6087
Jumbo	1237	1031	1555	1064	1180	---	---	6067
Passerel Plus	1188	1214	1167	1147	1292	---	---	6007
WD- 40	1373	1142	1201	1134	1128	---	---	5978
Ribeye	1231	1191	1366	1091	1029	---	---	5908
FL X2003 (New 2)ER	1199	1254	1540	979	924	---	---	5896
Tam 90	1150	1097	1246	1027	1313	---	---	5834
Gulf (Source A)	1263	1097	1213	1104	1152	---	---	5828
FL X2003 (G)4X LRLS	1301	1037	1504	1037	946	---	---	5825
Flying A	1052	1128	1128	1255	1207	---	---	5769
Rio	1238	1251	1146	1049	928	---	---	5613
Test Mean	1302	1195	1398	1091	1167			6152
C.V. (%)	18	13	20	13	17			6
LSD(0.10)	257	148	486	140	177			615

Planted: 10/17/2003

Soil: Malbis Fine Sandy Loam

† only five cuts taken at this location

TABLE 6. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 2004, AND TWO- AND THREE-YEAR AVERAGES FOR SAND MOUNTAIN REC AND PLANT BREEDING UNIT.

Sand Mountain Research and Ext. Ctr.				Plant Breeding Unit			
Brand-Variety	2-yr. Avg		3-yr. Avg	Brand-Variety	2-yr. Avg		3-yr. Avg
	2004	2003-04	2002-04		2004	2003-04	2002-04
	----- lbs per acre -----				----- lbs per acre -----		
Wax ME-94	14187	10878	9112	Jumbo	2505	2993	4071
Passerel Plus	14087	10805	8905	Jackson	2704	3190	3938
Brigadier	13838	10402	8863	Wax ME-94	2683	3066	3896
Marshall	13640	10494	8798	Ribeye	2610	2987	3880
Jackson	13375	10507	8776	Marshall	2603	3089	3871
WMN 97	13616	10407	8603	Brigadier	2753	3040	3861
TXR 2001-11	13630	10294	8564	Tam 90	2684	3072	3787
Tam 90	13527	10075	8342	WMN 97	2053	2894	3750
Prine	12629	9438	7944	TXR 2001-11	2189	2949	3691
Ed	12935	10239	†	Prine	2572	3156	3613
Gulf (Source A)	13589	10202	†	Passerel Plus	2098	2764	3549
WD- 40	13408	10089	†	Ed	2656	3172	†
FL/NE X 2002 (New 2) LRCT	12759	9849	†	Gulf (Source A)	2535	3040	†
Flying A	14244	†	†	FL/NE X 2002 (New 2) LRCT	2492	3001	†
Rio	14007	†	†	WD- 40	2604	2969	†
LM 9929D	12611	†	†	Flying A	3001	†	†
4X	12462	†	†	FL X2003 (New 2)ER	2810	†	†
FL X2003 (G)4X LRLS	12460	†	†	Shiwasuaba	2774	†	†
Ducado	12388	†	†	Rio	2722	†	†
FL X2003 (New 2)ER	12381	†	†	Ducado	2679	†	†
Diamond T	12033	†	†	Diamond T	2571	†	†
Shiwasuaba	11767	†	†	BAR9TAM	2397	†	†
				FL X2002 (New 3) LRCT	2337	†	†
				FL X2003 (G)4X LRLS	2317	†	†
				4X	2300	†	†
				LM 9929D	1984	†	†

TABLE 7. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 2004, AND TWO- AND THREE-YEAR AVERAGES FOR WIREGRASS REC AND GULF COAST REC

Wiregrass Research and Ext. Ctr.				Gulf Coast Research and Ext. Ctr.			
Brand-Variety	2-yr. Avg		3-yr. Avg	Brand-Variety	2-yr. Avg		3-yr. Avg
	2004	2003-04	2002-04		2004	2003-04	2002-04
----- lbs per acre -----				----- lbs per acre -----			
Prine	8111	6775	7490	Marshall	6375	6910	7045
Tam 90	6735	6139	7056	Brigadier	6560	6990	6808
Brigadier	6970	6181	6990	Tam 90	5834	6848	6750
Wax ME-94	7649	6323	6954	Jackson	6087	6908	6729
Jackson	6718	5864	6884	WMN 97	6146	6953	6723
Marshall	7066	5985	6870	Prine	6100	7186	6717
TXR 2001-11	6592	5875	6713	Wax ME-94	6328	6780	6715
Passerel Plus	6655	5772	6705	Jumbo	6067	6937	6705
WMN 97	6204	5533	6302	Passerel Plus	6007	6674	6644
Gulf (Source A)	7237	6558	†	TXR 2001-11	6144	6580	6618
Ed	7257	6159	†	Ribeye	5908	6647	6567
WD- 40	7092	6104	†	Ed	6282	6944	†
FL/NE X 2002 (New 2) LRCT	7087	6044	†	WD- 40	5978	6849	†
Diamond T	8293	†	†	FL/NE X 2002 (New 2) LRCT	6404	6846	†
FL X2003 (G)4X LRLS	8143	†	†	Gulf (Source A)	5828	6770	†
4X	7899	†	†	Shiwasuaba	6702	†	†
Flying A	7510	†	†	LM 9929D	6584	†	†
Shiwasuaba	7170	†	†	Ducado	6442	†	†
FL X2003 (New 2)ER	7091	†	†	BAR9TAM	6434	†	†
Ducado	6606	†	†	Diamond T	6377	†	†
Rio	6306	†	†	FL X2002 (New 3) LRCT	6146	†	†
LM 9929D	4998	†	†	4X	6110	†	†
				FL X2003 (New 2)ER	5896	†	†
				FL X2003 (G)4X LRLS	5825	†	†
				Flying A	5769	†	†
				Rio	5613	†	†

TABLE 8. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT SAND MOUNTAIN REC AND PLANT BREEDING UNIT BASED ON THREE-YEAR AVERAGES, 2002-2004.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	----- % of 3-yr average -----			-- lbs per acre --
Sand Mountain Research and Ext. Ctr.				
Wax ME-94	25.9	42.6	31.5	9112
Passerel Plus	24.8	42.5	32.7	8905
Brigadier	28.6	40.3	31.1	8863
Marshall	24.4	44.9	30.7	8798
Jackson	25.5	44.1	30.4	8776
WMN 97	21.3	43.5	35.3	8603
TXR 2001-11	20.8	45.9	33.3	8564
Tam 90	28.0	41.0	31.0	8342
Prine	28.0	42.8	29.2	7944
Plant Breeding Unit				
Prine	22.0	47.0	31.0	4071
Jumbo	22.3	44.5	33.2	3939
Jackson	21.1	49.0	29.8	3938
Wax ME-94	20.6	46.0	33.4	3896
Ribeye	17.6	52.0	30.4	3880
Marshall	20.4	44.9	34.7	3871
Brigadier	22.8	50.1	27.0	3861
Tam 90	21.6	49.4	29.0	3787
WMN 97	19.3	45.8	34.9	3750
TXR 2001-11	18.3	49.3	32.4	3691
Passerel Plus	20.5	43.7	35.8	3549

TABLE 9. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT WIREGRASS REC AND GULF COAST REC BASED ON THREE-YEAR AVERAGES, 2002-2004.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	----- % of 3-yr average -----			-- lbs per acre --
Wiregrass Research and Ext. Ctr.				
Prine	33.3	48.7	18.0	7490
Tam 90	34.3	49.5	16.2	7056
Brigadier	33.4	49.9	16.7	6990
Wax ME-94	32.2	51.4	16.4	6954
Jackson	31.8	51.8	16.4	6884
Marshall	30.8	51.9	17.3	6870
TXR 2001-11	30.2	51.8	18.1	6713
Passerel Plus	31.1	49.6	19.3	6705
WMN 97	28.2	52.5	19.3	6302
Gulf Coast Research and Ext. Ctr.				
Marshall	38.3	38.3	23.4	7045
Brigadier	41.3	37.5	21.2	6808
Tam 90	41.5	35.7	22.8	6750
Jackson	41.0	36.0	23.0	6729
WMN 97	39.9	35.2	24.9	6723
Prine	39.8	34.7	25.5	6717
Wax ME-94	41.1	37.4	21.4	6715
Jumbo	39.2	35.5	25.3	6705
Passerel Plus	38.9	36.1	25.0	6644
TXR 2001-11	37.7	37.5	24.8	6618
Ribeye	42.8	34.6	22.6	6567

SOURCES OF RYEGRASS SEED

BAR9TAM Jumbo Ribeye FL X2002 (New 3) LRCT	Barenbrug USA, Tangent, Oregon
Brigadier Prine	East Texas Seed Co., Tyler, Texas
Diamond T 4X Flying A WD-40	OreGro Seeds, Inc., Shedd, Oregon
Gulf (Local Source)	Piedmont Fertilizer Co., Opelika, Alabama
Ducado LM 9929D Passerel Plus Shiwasuaba	Pennington Seed, Inc., Lebanon, Oregon
Rio	ProSeeds Marketing, Inc., Jefferson, Oregon
Ed	Smith Seed Service, Halsey, Oregon
TAM 90 TXR 2001-11	Texas A & M University, College Station, Texas
Jackson Marshall WAX ME-94 WMN 97	The Wax Company, LLC, Amory, Mississippi
FL/NE X2002(New 2) LRCT FL X2003 (New 2) ER FL X2003 (G) 4X LRLS	University of Florida, Gainesville, Florida