Performance of Ryegrass Varieties in Alabama, 2007-08

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PERFORMANCE OF RYEGRASS VARIETIES IN ALABAMA, 2007-08

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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 2007, the tests were planted October 30, October 30, October 9, October 11, and November 2 at Crossville, Tallassee, Headland, Fairhope, and Marion Junction, respectively. In 2006, the tests were planted September 29, September 27, October 25, October 24, and November 28 at Crossville, Tallassee, Headland, Fairhope, and Marion Junction, respectively. In 2005, the tests were planted September 10, October 19, November 4, October 20, and October 17, at Crossville, Tallassee, Headland, Fairhope, and Marion Junction, respectively.

Discussion

Strategies to meet seasonal forage needs are an important consideration for livestock producers. Tables 1-5 provide yield data by harvest for 2007-08 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 11. 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, 2008.

	Yield by harvest date						Season
Cultivar	3/3	3/18	4/2	4/11	5/1	5/23	total
	lbs per acre						
FL/NE X 2006 (Misc 2X) LRCT	529	609	1118	445	1630	2493	6825
WMN 97	308	565	1122	455	1554	2794	6798
Wax ME-4	480	707	1165	618	1237	2273	6480
Attain	585	581	1037	397	1571	2308	6478
Marshall	511	631	1219	641	1284	2174	6459
Ed	665	639	947	383	1357	2458	6448
Passerel Plus	578	635	1006	534	1475	2190	6420
Wax ME-94	451	643	1133	601	1583	2010	6420
Flying A	716	602	1018	434	1358	2289	6416
Big Boss	450	585	1054	542	1563	2167	6360
Jackson	686	646	986	346	1309	2354	6326
Dyna-Gain	702	609	943	433	1282	2326	6295
Prine	466	581	944	558	1517	2202	6268
DH-3	606	655	969	474	1295	2243	6242
Rio	579	612	1053	426	1515	2026	6211
Tam 90	409	619	913	504	1279	2388	6113
4X	402	558	882	565	1449	2254	6109
TetraPro	460	519	941	442	1476	2154	5991
Jumbo	455	561	871	449	1403	2246	5985
Verdure	438	509	910	594	1558	1942	5951
TAMTBO	521	578	876	423	1473	2034	5903
WD-40	443	611	989	427	1252	2166	5889
Gulf (Local)	289	519	968	531	1376	2311	5863
Diamond T	410	653	918	491	1181	2080	5733
Maximus	373	514	884	520	1441	1950	5682
Shiwasuaoba	342	337	775	311	1126	1973	4863
Test Mean	494	588	986	482	1406	2223	6174
C.V. (%)	20	16	14	19	18	16	9
LSD(0.10)	91	86	140	101	237	343	480

Planted: 10/30/2007

Soil: Hartsells Fine Sandy Loam

TABLE 2. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE E.V. SMITH RESEARCH CENTER, PLANT BREEDING UNIT, TALLASSEE, 2008.

PBU	Yield by harvest date						Season
Cultivar	12/18	2/20	3/13	3/27	4/9	5/2	total
	lbs per acre						
Attain	284	1273	1333	1241	974	1293	6397
Wax ME-4	340	1119	1207	1365	1126	1162	6319
TetraPro	229	808	970	1214	1181	1564	5966
Maximus	293	1106	1053	1239	1108	1136	5935
Jumbo	278	993	1053	1195	1074	1272	5864
Passerel Plus	450	1225	902	1128	994	1123	5822
Big Boss	305	1008	977	1133	992	1368	5782
Flying A	483	930	939	1340	1187	886	5766
Diamond T	279	1141	1146	1091	910	1134	5700
TAMTBO	323	1095	841	1117	982	1337	5696
Verdure	277	823	904	1176	994	1482	5655
Ed	573	854	957	1260	1032	866	5542
Jackson	308	1190	903	1293	1016	816	5525
Rio	334	1059	966	1318	947	880	5504
DH-3	566	1182	820	1241	890	737	5435
Gulf (Local)	195	688	1118	1055	945	1372	5372
Dyna-Gain	323	978	1061	1094	915	983	5354
Marshall	358	492	997	1259	1250	976	5332
4X	278	702	881	1230	1176	1034	5301
Prine	226	524	913	1216	1108	1271	5258
Tam 90	264	1074	901	1228	984	720	5171
FL/NE X 2006 (Misc 2X) LRCT	261	990	753	999	1109	1036	5148
WD-40	423	983	1104	1069	796	710	5083
Wax ME-94	459	562	663	1293	1108	943	5027
WMN 97	165	322	730	1205	1397	927	4745
Shiwasuaoba	518	1322	1026	706	721	406	4599
Test Mean	338	940	966	1181	1035	1055	5511
C.V. (%)	48	52	25	18	20	32	16
LSD(0.10)	179	662	230	210	234	314	943

Planted: 10/30/2007

Soil: Cahaba Fine Sandy Loam

TABLE 3. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE BLACK BELT RESEARCH AND EXTENSION CENTER, MARION JUNCTION, ALABAMA, 2008.

Cultivar	Yield by harvest date						Season total
	3/18	5/20	†	†	†	†	
	lbs per acre						
Wax ME-4	3721	5565	.	.	.	.	9286
Wax ME-94	3632	4763	.	.	.	.	8394
Marshall	3487	4789	.	.	.	.	8276
Passerel Plus	3209	4595	.	.	.	.	7804
Prine	3176	4615	.	.	.	.	7791
Diamond T	2525	5051	.	.	.	.	7576
Flying A	3317	4101	.	.	.	.	7419
Tam 90	2728	4408	.	.	.	.	7136
Rio	3665	3363	.	.	.	.	7028
Jackson	3384	3549	.	.	.	.	6933
Gulf (Local)	2610	3952	.	.	.	.	6562
Test Mean	3223	4432	.	.	.	.	7655
C.V. (%)	17	19	.	.	.	.	12
LSD(0.10)	755	813	.	.	.	.	933

Planted: 11/2/2007

Soil: Houston Clay

† only two cuts taken at this location

TABLE 4. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE WIREGRASS RESEARCH AND EXTENSION CENTER, HEADLAND, ALABAMA, 2008.

	Yield by harvest date						Season
Cultivar	1/14	2/19	3/10	4/9	5/6	†	total
	lbs per acre						
4X	2531	2815	3940	5620	2488	.	17395
Attain	2540	2799	3994	5584	2301	.	17218
Ed	2622	2734	4612	5059	1608	.	16634
Wax ME-4	2086	2013	5240	5271	1956	.	16566
Diamond T	2342	3044	4231	5007	1729	.	16353
Rio	1901	2340	5125	5604	1351	.	16321
Big Boss	2554	2270	4236	5128	2101	.	16290
FLX 2006(PE)LRCT	1727	2567	4704	5564	1598	.	16160
Marshall	1922	1949	4627	6192	1468	.	16158
TAMTBO	2101	2559	3884	5728	1729	.	16001
Passerel Plus	1942	2279	4374	5792	1550	.	15936
Gulf (Local)	1895	1900	4059	6195	1769	.	15818
Dyna-Gain	2218	2414	4138	4987	1957	.	15715
Prine	1865	2571	3987	5018	2254	.	15694
M/FL X2005 (4X) ER	2137	3631	3724	4740	1408	.	15639
Wax ME-94	2094	2152	4782	5208	1393	.	15629
TetraPro	1907	2307	4505	4941	1880	.	15538
FL/NE X 2006 (Misc 2X) LRCT	1411	2295	4518	5683	1559	.	15465
DH-3	1785	2636	4281	5395	1356	.	15453
WMN 97	1966	1415	4556	6048	1449	.	15434
Jumbo	1596	2291	4473	4808	2258	.	15427
Verdure	2754	2537	3780	4450	1721	.	15242
Tam 90	1725	2243	4181	5496	1500	.	15145
Jackson	1632	2048	4348	5367	1670	.	15065
Flying A	2338	2701	3591	4512	1678	.	14820
WD-40	2562	2731	3735	4700	1048	.	14776
Maximus	1712	2391	3862	4936	1850	.	14751
Chipola 2X 2007	1828	3514	3552	4340	1194	.	14427
Shiwasuaoba	2333	3571	3014	3234	818	.	12969
Test Mean	2070	2508	4209	5193	1677	.	15657
C.V. (%)	17	18	13	18	24	.	8
LSD(0.10)	372	423	485	896	408	.	1210

Planted: 10/9/2007

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, 2008.

	Yield by harvest date						Season
Cultivar	12/18	1/15	2/20	3/21	4/10	5/12	total
	lbs per acre						
Attain	1850	775	1139	2041	1957	1752	9513
Rio	1408	738	1242	2303	2052	1461	9204
Diamond T	1675	794	1221	1993	1984	1511	9178
Wax ME-4	1611	722	967	2114	2268	1473	9155
TAMTBO	1531	763	1136	2066	2103	1498	9097
Ed	1468	793	1343	2339	1812	1316	9071
Jackson	1516	658	1044	2284	2012	1466	8981
Dyna-Gain	1325	843	1169	2264	1927	1400	8928
Flying A	1510	749	1059	2164	1959	1434	8874
Shiwasuaoba	1374	742	1632	2217	1550	1340	8854
Marshall	1471	694	681	1935	2221	1813	8815
Tam 90	1341	587	1141	2094	1901	1700	8764
Maximus	1107	670	1275	2196	1953	1554	8754
Passerel Plus	1252	623	862	2166	2221	1624	8747
Verdure	1518	859	1310	2004	1755	1288	8734
DH-3	1218	784	1049	2334	1887	1422	8693
Big Boss	1278	714	1285	1979	1865	1535	8655
Gulf (Local)	1193	590	1266	2368	1890	1292	8599
Wax ME-94	1376	654	829	2050	2147	1539	8595
Prine	1210	621	1095	2055	2053	1508	8541
WD-40	1381	698	1118	2173	1873	1250	8493
FL/NE X 2006 (Misc 2X) LRCT	877	534	773	2284	2093	1863	8425
WMN 97	1577	601	587	1756	2282	1554	8356
Jumbo	1110	535	1196	2216	1810	1421	8288
TetraPro	1263	671	995	1921	1844	1526	8220
4X	1363	703	1058	1841	1952	1211	8128
Test Mean	1377	697	1095	2121	1976	1490	8756
C.V. (%)	18	22	21	11	8	16	9
LSD(0.10)	222	139	215	218	166	222	685

Planted: 10/11/2007

Soil: Malbis Fine Sandy Loam

TABLE 6. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 2008, 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	2008	2-yr. Avg 2007-08	3-yr. Avg 2006-08	Brand-Variety	2008	2-yr. Avg 2007-08	3-yr. Avg 2006-08
	---------- lbs per acre --------				---------- lbs per acre --------		
DH-3	6242	7361	7797	Marshall	5332	7030	6241
Jackson	6326	7715	7580	Attain	6397	6934	6214
Rio	6211	7313	7577	Dyna-Gain	5354	6865	6195
Ed	6448	7495	7542	Wax ME-4	6319	7082	6194
WMN 97	6798	7669	7524	Passerel Plus	5822	6944	6179
Marshall	6459	7705	7471	Maximus	5935	6874	6148
Dyna-Gain	6295	7378	7373	Ed	5542	6859	6099
Wax ME-94	6420	7491	7361	Flying A	5766	6688	6018
FL/NE X 2006 (Misc 2X) LRCT	6825	7567	7332	Big Boss	5782	6641	5985
Big Boss	6360	7376	7309	Jumbo	5864	6559	5882
WD-40	5889	7070	7303	Wax ME-94	5027	6524	5846
4X	6109	7258	7250	Verdure	5655	6526	5822
Diamond T	5733	7308	7219	Diamond T	5700	6335	5812
Prine	6268	7136	7214	Jackson	5525	6542	5801
Maximus	5682	6972	7198	WD-40	5083	6456	5749
Tam 90	6113	7122	7170	TAMTBO	5696	6211	5748
Wax ME-4	6480	7734	7169	4X	5301	6313	5735
Passerel Plus	6420	7184	7141	DH-3	5435	6468	5677
Gulf (Local)	5863	6925	7057	Rio	5504	6232	5674
Verdure	5951	7003	7054	WMN 97	4745	6328	5553
TAMTBO	5903	6912	6990	Gulf (Local)	5372	5805	5537
Flying A	6416	6954	6942	Tam 90	5171	6093	5412
Attain	6478	7156	6902	Prine	5258	5272	5257
Jumbo	5985	6793	6755	FL/NE X 2006 (Misc 2X) LRCT	5148	5689	5182
Shiwasuaoba	4863	5621	6156	Shiwasuaoba	4599	5500	5110
TetraPro	5991	.	.	TetraPro	5966	.	.

TABLE 7. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 2008, 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	2008	2-yr. Avg 2007-08	3-yr. Avg 2006-08	Brand-Variety	2008	2-yr. Avg 2007-08	3-yr. Avg 2006-08
	---------- lbs per acre --------				---------- lbs per acre --------		
Attain	17218	12866	11619	Wax ME-4	9155	8112	7720
Wax ME-4	16566	12616	11346	Rio	9204	8196	7704
M/FL X2005 (4X) ER	15639	12188	11266	Ed	9071	8029	7587
Diamond T	16353	12161	11232	Flying A	8874	8057	7564
Prine	15694	11874	11112	Jackson	8981	8081	7560
TAMTBO	16001	11932	11109	Attain	9513	8220	7558
4X	17395	12411	11098	TAMTBO	9097	8021	7527
Rio	16321	11746	11054	Tam 90	8764	7932	7525
Verdure	15242	11577	11048	Marshall	8815	8040	7506
Gulf (Local)	15818	11479	11010	Dyna-Gain	8928	8105	7420
Big Boss	16290	11751	10976	Big Boss	8655	7993	7419
Marshall	16158	12071	10965	Maximus	8754	8030	7414
Ed	16634	12270	10943	Verdure	8734	7898	7404
Maximus	14751	11226	10832	Shiwasuaoba	8854	7836	7383
Flying A	14820	11175	10803	Passerel Plus	8747	7916	7351
Dyna-Gain	15715	11547	10740	DH-3	8693	7729	7346
Jumbo	15427	11457	10725	Diamond T	9178	7821	7344
Tam 90	15145	11374	10713	Wax ME-94	8595	7790	7342
Passerel Plus	15936	11712	10540	Prine	8541	7836	7342
DH-3	15453	11030	10440	Jumbo	8288	7676	7333
Jackson	15065	11189	10386	Gulf (Local)	8599	7485	7279
Wax ME-94	15629	11641	10356	WD-40	8493	7779	7152
WMN 97	15434	11624	10252	WMN 97	8356	7575	7138
FL/NE X 2006 (Misc 2X) LRCT	15465	10938	10170	FL/NE X 2006 (Misc 2X) LRCT	8425	7604	7098
WD-40	14776	10754	10061	4X	8128	7378	6901
Shiwasuaoba	12969	9936	9724	TetraPro	8220	.	.
FLX 2008(PE)LRCT	16160	11789	.				
TetraPro	15538	.	.				
Chipola 2X 2008	14427	.	.				

TABLE 8. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT SAND MOUNTAIN REC BASED ON THREE-YEAR AVERAGES, 2006-2008.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	---------- % of total seasonal yield ----------			
Sand Mountain Research and Ext. Ctr.				
Marshall	20	45	36	8586
DH-3	11	50	39	8428
Rio	15	48	37	8413
Wax ME-4	18	45	37	8385
Ed	15	45	40	8362
WD-40	18	44	38	8286
Jackson	11	47	42	8169
Wax ME-94	15	47	38	8154
Big Boss	16	46	39	8152
FL/NE X 2006 (Misc 2X) LRCT	14	45	41	8095
WMN 97	10	48	42	8054
Passerel Plus	16	46	39	7977
Dyna-Gain	11	47	41	7972
Diamond T	13	48	39	7925
Prine	13	47	40	7868
Maximus	12	48	39	7837
TAMTBO	16	45	39	7805
Tam 90	11	47	42	7754
4X	10	51	40	7738
Attain	16	44	40	7731
Verdure	13	48	39	7712
Flying A	14	45	40	7669
Gulf (Local)	12	47	41	7667
Jumbo	13	47	40	7393
Shiwasuaoba	22	43	36	7209

continued

TABLE 9. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT PLANT BREEDING UNIT BASED ON THREE-YEAR AVERAGES, 2006-2008.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	---------- % of total seasonal yield ----------			
Plant Breeding Unit				
Marshall	34	49	17	6241
Attain	33	49	18	6214
Dyna-Gain	37	47	16	6195
Wax ME-4	32	50	18	6194
Passerel Plus	37	45	18	6179
Maximus	36	47	17	6148
Ed	38	47	16	6099
Flying A	36	50	15	6018
Big Boss	35	48	18	5985
Jumbo	29	51	20	5882
Wax ME-94	34	50	17	5846
Verdure	33	48	20	5822
Diamond T	32	49	19	5812
Jackson	34	50	16	5801
WD-40	36	51	14	5749
TAMTBO	31	49	20	5748
4X	31	52	17	5735
DH-3	39	48	14	5677
Rio	33	51	17	5674
WMN 97	29	54	18	5553
Gulf (Local)	33	49	18	5537
Tam 90	35	52	14	5412
Prine	26	52	22	5257
FL/NE X 2006 (Misc 2X) LRCT	30	52	18	5182
Shiwasuaoba	47	43	10	5144

continued

TABLE 10. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT WIREGRASS REC BASED ON THREE-YEAR AVERAGES, 2006-2008.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	---------- % of total seasonal yield ----------			
Wiregrass Research and Ext. Ctr.				
Attain	34	51	15	11619
Wax ME-4	29	58	14	11346
M/FL X2005 (4X) ER	39	49	12	11266
Diamond T	37	50	13	11232
4X	34	51	15	11176
Prine	35	49	16	11112
TAMTBO	35	52	13	11109
Rio	34	54	11	11054
Verdure	39	47	14	11048
Gulf (Local)	34	54	12	11010
Big Boss	35	50	15	10976
Marshall	28	59	12	10965
Ed	36	52	12	10943
Maximus	35	50	15	10832
Flying A	37	49	14	10803
Dyna-Gain	35	51	14	10740
Jumbo	33	53	15	10725
Tam 90	33	54	13	10713
Passerel Plus	31	57	12	10540
DH-3	36	53	12	10440
Jackson	32	56	13	10386
Wax ME-94	31	56	12	10356
WMN 97	27	61	12	10252
FL/NE X 2006 (Misc 2X) LRCT	29	58	13	10170
WD-40	38	51	11	10061
Shiwasuaoba	51	42	8	9724

continued

TABLE 11. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT GULF COAST REC BASED ON THREE-YEAR AVERAGES, 2006-2008.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	---------- % of total seasonal yield ----------			
Gulf Coast Research and Ext. Ctr.				
Rio	34	44	22	8301
Wax ME-4	33	47	20	8275
Attain	35	43	23	8172
Jackson	31	46	23	8172
Ed	33	45	21	8166
Tam 90	31	46	24	8163
Marshall	31	45	24	8155
Flying A	35	44	21	8137
TAMTBO	34	45	21	8097
Maximus	32	45	24	8055
Big Boss	33	44	24	8050
Dyna-Gain	33	45	22	8009
Passerel Plus	31	45	24	8001
Verdure	36	43	21	7969
Prine	32	45	23	7953
Shiwasuaoba	37	42	21	7946
DH-3	32	46	22	7935
Jumbo	32	45	23	7928
Wax ME-94	32	46	22	7917
Diamond T	36	43	21	7907
Gulf (Local)	32	48	20	7810
WMN 97	31	45	24	7751
FL/NE X 2006 (Misc 2X) LRCT	27	49	24	7721
WD-40	32	46	22	7711
4X	33	47	20	7391

SOURCES OF RYEGRASS SEED

Cultivar	Company
Jumbo Maximus	Barenbrug USA, Tangent, Oregon
Prine	Ragan & Massey, Inc., Ponchatoula, Louisiana
4X DH-3 Diamond T Dyna-Gain Flying A FL/NE X 2006 (Misc 2X) LRCT WD-40	OreGro Seeds, Inc., Shedd, Oregon
Gulf (Local Source)	Piedmont Fertilizer Co., Opelika, Alabama
Passerel Plus Shiwasuaoba	Pennington Seed, Inc., Lebanon, Oregon
Rio	ProSeeds Marketing, Inc., Jefferson, Oregon
Attain Big Boss Ed Verdure	Smith Seed Service, Halsey, Oregon
TAM 90 TAMTBO TetraPro	Texas A & M University, College Station, Texas
Jackson Marshall WAX ME-94 WMN 97 WAX ME-4	The Wax Company, LLC, Amory, Mississippi
M/FL X2007(4x)ER FL/NE X2007(Misc 2x)LRCT FL/NE X2007(PE-2x)LRCT Chipola2007(2x)	University of Florida, Gainesville, Florida