Performance of Ryegrass Varieties in Alabama, 2009-10

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M.D. Pegues, Assoc. Supt.
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B.E. Gamble, Asst. Supt.

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PERFORMANCE OF RYEGRASS VARIETIES IN ALABAMA, 2009-10

K.M. Glass and E. van Santen

Agric. Program Associate and Professor, Dept. of Agronomy and Soils, Auburn University, AL 36849

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 2009, the tests were planted on September 30, October 1, October 21, and October 21 at Crossville, Tallassee, Headland, and Fairhope, respectively. In 2008, the tests were planted October 16, October 14, October 30, and October 13 at Crossville, Tallassee, Headland, and Fairhope, respectively. A small trial was planted on October 22 at Marion Junction but no stand was obtained. 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.

Discussion

Strategies to meet seasonal forage needs are an important consideration for livestock producers. Tables 1-5 provide yield data by harvest for 2009-10 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 - 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, 2010.

	Yield by harvest date						Season
Cultivar	3/26†	4/15	5/12	6/7	‡	‡	total
	lbs per acre						
SHXFL 2009 (2X) ME	436	3120	983	287			4826
Passerel Plus	196	3083	1230	313			4822
Flying A	160	2649	1343	450			4603
Wax ME-94	159	2787	1258	364			4568
Jackson	261	2810	1135	317			4523
Tam 90	217	2839	1084	314			4454
FLXSH 2009 (2X) ME	322	2884	916	247			4370
Diamond T	181	2586	1150	431			4349
Wax ME-4	266	2551	1069	423			4310
Gulf (Local)	189	2810	856	449			4304
Rio	256	2831	764	432			4283
Marshall	215	2508	1074	450			4248
Maximus	236	2234	1224	542			4236
FL X2009 Red 4X late	228	2316	1281	365			4190
Bulldog Grazer	291	2352	1183	362			4188
Winterhawk	216	2688	857	399			4160
FLX 2009(PE-2X) LRCT	185	2570	1069	315			4139
TXR2006-T22	204	2493	971	376			4044
DH-3	271	2459	1042	266			4038
TAMTBO	265	2431	1026	278			4001
M/FL X2009 (4X) ER	330	2387	973	174			3864
Prine	137	2254	1002	382			3775
PPER2	109	2793	679	368			3949
Jumbo	198	2232	860	245			3536
Test Mean	230	2611	1043	356			4241
C.V.(%)	56	11	28	31			11
LSD(0.10)	118	258	267	101			424

Planted: 9/30/2009

Soil: Hartsells Fine Sandy Loam

† The first cut was made prematurely in order to remove forage after a frost killed top growth

‡ only four cuts taken at this location

TABLE 2. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE E.V. SMITH RESEARCH CENTER, PLANT BREEDING UNIT, TALLASSEE, 2010.

Cultivar	1 Yield by harvest date 1/28	3/30	4/23	5/20	†	†	Season total
	---------- lbs per acre ----------						
TXR2006-T22	840	2009	1779	2559			7186
Winterhawk	494	2284	1639	2412			6829
Marshall	796	2081	1819	1756			6453
Wax ME-94	760	2009	1727	1821			6318
TAMTBO	774	1792	1493	2204			6263
Prine	803	1898	1541	1997			6239
Jackson	633	1729	1592	2190			6144
FLX 2009(PE-2X) LRCT	378	1711	1674	2358			6121
Flying A	841	2021	1676	1510			6048
Wax ME-4	646	1576	1887	1873			5982
DH-3	757	1774	1813	1577			5921
Maximus	703	1834	1635	1711			5883
FL X2009 Red 4X late	628	1801	1358	2094			5882
Jumbo	611	1708	1279	2204			5802
M/FL X2009 (4X) ER	891	2263	1163	1479			5796
Tam 90	653	2035	1412	1669			5770
Rio	815	1799	1338	1769			5722
SHXFL 2009 (2X) ME	905	2348	1042	1406			5701
FLXSH 2009 (2X) ME	691	2653	1083	1266			5694
Bulldog Grazer	786	2154	1196	1454			5590
Gulf (Local)	893	1913	1307	1407			5520
B-7,1366	662	1778	1233	1836			5510
Diamond T	811	1821	1129	1732			5494
KB Royal	1095	2052	1208	1121			5476
Passerel Plus	768	1804	1451	1346			5369
PPER2	365	1165	1621	1501			4652
Test Mean	731	1924	1465	1779			5899
C.V.(%)	25	10	13	17			8
LSD(0.10)	167	174	176	280			407

Planted: 10/1/2009

Soil: Cahaba Fine Sandy Loam

† only four cuts taken at this location

TABLE 3. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE BLACK BELT RESEARCH AND EXTENSION CENTER, MARION JUNCTION, ALABAMA, 2010.

Trial not seeded due to inclement fall weather.

TABLE 4. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE WIREGRASS RESEARCH AND EXTENSION CENTER, HEADLAND, ALABAMA, 2010.

	Yield by harvest date						Season
Cultivar	1/27	3/9	3/30	5/6	†	†	total
	lbs per acre						
Maximus	2393	4728	5655	4794			17571
Prine	2496	4795	5842	4139			17272
TAMTBO	2077	4118	5994	4750			16939
Winterhawk	2097	4607	6358	3764			16826
Flying A	2894	4859	5167	3712			16632
TXR2006-T22	1544	4315	6055	4503			16417
Diamond T	2093	4884	5042	4305			16323
Wax ME-4	2020	3847	6344	4086			16296
Wax ME-94	2163	3864	6092	4056			16176
DH-3	2399	4494	5831	3424			16148
Bulldog Grazer	2332	4884	5485	3442			16143
Marshall	2497	4239	5656	3691			16083
Rio	2539	4386	5917	3211			16051
Tam 90	2212	4851	5347	3409			15819
Jumbo	1562	4280	5757	4110			15709
M/FL X2009 (4X) ER	2497	5319	4495	3314			15624
FL X2009 Red 4X late	2175	4063	5159	4212			15609
Gulf (Local)	2554	4349	5204	3252			15358
FLXSH 2009 (2X) ME	2133	5790	4785	2597			15306
PPER2	1355	2928	6853	3804			14940
SHXFL 2009 (2X) ME	2774	5194	4135	2737			14840
Jackson	1876	3863	5375	3375			14489
Passerel Plus	1423	3919	5458	3086			13885
FLX 2009(PE-2X) LRCT	1170	3231	5268	3850			13519
Test Mean	2136	4409	5553	3734			15832
C.V.(%)	30	14	11	8			9
LSD(0.10)	578	547	562	268			1234

Planted: 10/21/2009

Soil: Dothan Fine Sandy Loam

† only four cuts taken at this location

TABLE 5. SEASONAL DRY MATTER YIELD OF ANNUAL RYEGRASS AT THE GULF COAST RESEARCH AND EXTENSION CENTER, FAIRHOPE, ALABAMA, 2010.

	Yield by harvest date						Season
Cultivar	1/28	3/5	3/18	4/2	4/19	5/20	total
	lbs per acre						
Marshall	1859	1479	1293	1980	1797	2307	10715
B-7,1366	1633	1199	1249	1951	1886	2596	10515
Bulldog Grazer	1929	1608	1193	1719	1601	2192	10243
Flying A	1760	1502	1226	1829	1683	2124	10124
Diamond T	1712	1614	1220	1665	1688	2204	10103
Rio	1680	1416	1212	1900	1789	2086	10083
Winterhawk	1426	1380	1344	1984	1752	2197	10082
DH-3	1565	1436	1271	1866	1800	2129	10067
Wax ME-4	1440	1202	1318	2020	1926	2157	10062
Prine	1486	1494	1245	1762	1639	2391	10019
Wax ME-94	1411	1139	1285	1960	1978	2217	9991
Maximus	1612	1506	1264	1541	1684	2377	9984
Jackson	1230	1275	1323	1972	1897	2274	9971
Passerel Plus	1518	1462	1245	1873	1769	2049	9917
Gulf (Local)	1510	1467	1264	1888	1751	2027	9908
HS1	1997	1716	1074	1713	1476	1888	9864
Jumbo	1385	1289	1251	1744	1755	2418	9841
KB Royal	1711	1556	1239	1787	1671	1812	9777
TAMTBO	1364	1419	1221	1569	1658	2501	9732
PPER2	1178	778	1090	2071	2078	2491	9687
Tam 90	1282	1433	1321	1831	1674	2133	9675
TXR2006-T22	1505	1344	1209	1732	1615	2249	9653
FLX 2009(PE-2X) LRCT	849	998	1229	2007	1965	2520	9568
Brangus	1556	1473	1188	1675	1629	2031	9553
M/FL X2009 (4X) ER	1649	1805	1099	1545	1484	1839	9422
FL X2009 Red 4X late	1233	1485	1206	1571	1514	2218	9228
SHXFL 2009 (2X) ME	1787	1691	999	1615	1325	1762	9180
FLXSH 2009 (2X) ME	1479	1598	927	1585	1420	1714	8722
Test Mean	1527	1420	1215	1798	1711	2175	9846
C.V.(%)	17	10	6	7	8	10	6
LSD(0.10)	241	132	70	108	124	194	505

Planted: 10/21/2009

Soil: Malbis Fine Sandy Loam

TABLE 6. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 2010, AND TWO- AND THREE-YEAR AVERAGES FOR SAND MOUNTAIN REC AND PLANT BREEDING UNIT.

Sand Mountain Research and Ext. Ctr.				Plant Breeding Unit			
		2-yr. Avg	3-yr. Avg			2-yr. Avg	3-yr. Avg
Brand-Variety	2010	2009-10	2008-10	Brand-Variety	2010	2009-10	2008-10
	---------- lbs per acre --------				---------- lbs per acre --------		
Marshall	4248	5342	5715	Wax ME-4	5982	6559	6479
Jackson	4523	5256	5613	Flying A	6048	6327	6140
Wax ME-94	4568	5111	5548	Marshall	6453	6485	6101
Flying A	4603	5100	5539	Jumbo	5802	6148	6053
Wax ME-4	4310	4957	5464	DH-3	5921	6276	5996
Tam 90	4454	5059	5410	Maximus	5883	5936	5935
DH-3	4038	4854	5317	Wax ME-94	6318	6363	5918
Gulf (Local)	4304	5030	5308	Jackson	6144	6068	5887
Passerel Plus	4822	4689	5266	Diamond T	5494	5928	5852
TAMTBO	4001	4936	5258	Rio	5722	5950	5801
Rio	4283	4725	5220	Prine	6239	5954	5722
Diamond T	4349	4955	5214	TAMTBO	6263	5601	5632
Prine	3775	4667	5200	Passerel Plus	5369	5501	5608
Maximus	4236	4931	5182	Gulf (Local)	5520	5365	5367
Jumbo	3536	4192	4790	Tam 90	5770	5426	5341
Bulldog Grazer	4188	4967		TXR2006-T22	7186	6695	
FL X2009 Red 4X late	4190	4878		FL X2009 Red 4X late	5882	6018	
TXR2006-T22	4044	4648		Bulldog Grazer	5590	5851	
M/FL X2009 (4X) ER	3864	4457		M/FL X2009 (4X) ER	5796	5717	
SHXFL 2009 (2X) ME	4826			Winterhawk	6829		
FLXSH 2009 (2X) ME	4370			FLX 2009(PE-2X) LRCT	6121		
Winterhawk	4160			SHXFL 2009 (2X) ME	5701		
FLX 2009(PE-2X) LRCT	4139			FLXSH 2009 (2X) ME	5694		
PPER2	3949			B-7,1366	5510		
				KB Royal	5476		
				PPER2	4652		

TABLE 7. TOTAL DRY MATTER YIELD OF RYEGRASS VARIETIES, 2010, AND TWO- AND THREE-YEAR AVERAGES FOR WIREGRASS REC AND GULF COAST REC.

Wiregrass Research and Ext. Ctr.				Gulf Coast Research and Ext. Ctr.			
		2-yr. Avg	3-yr. Avg			2-yr. Avg	3-yr. Avg
Brand-Variety	2010	2009-10	2008-10	Brand-Variety	2010	2009-10	2008-10
	---------- lbs per acre --------				---------- lbs per acre --------		
Diamond T	16323	12427	13736	Marshall	10715	9924	9554
TAMTBO	16939	12515	13677	Flying A	10124	9834	9514
Prine	17272	12606	13635	Diamond T	10103	9582	9448
Wax ME-4	16296	11885	13445	Wax ME-4	10062	9488	9377
Maximus	17571	12724	13400	Jackson	9971	9496	9324
Jumbo	15709	12179	13262	Rio	10083	9353	9303
DH-3	16148	12034	13174	Wax ME-94	9991	9604	9268
Flying A	16632	12327	13158	TAMTBO	9732	9221	9179
M/FL X2009 (4X) ER	15624	11764	13056	DH-3	10067	9359	9137
Rio	16051	11388	13032	Prine	10019	9381	9101
Wax ME-94	16176	11728	13028	Maximus	9984	9158	9023
Marshall	16083	11460	13026	Passerel Plus	9917	9110	8989
Gulf (Local)	15358	11141	12700	Gulf (Local)	9908	9121	8947
Tam 90	15819	11111	12455	Tam 90	9675	8974	8904
Jackson	14489	11034	12378	Jumbo	9841	9056	8800
Passerel Plus	13885	10495	12309	Bulldog Grazer	10243	9405	
TXR2006-T22	16417	12415		TXR2006-T22	9653	9083	
FL X2009 Red 4X late	15609	12007		FL X2009 Red 4X late	9228	8907	
Bulldog Grazer	16143	11933		M/FL X2009 (4X) ER	9422	8631	
Winterhawk	16826			B-7,1366	10515		
FLXSH 2009 (2X) ME	15306			Winterhawk	10082		
PPER2	14940			HS1	9864		
SHXFL 2009 (2X) ME	14840			KB Royal	9777		
FLX 2009(PE-2X) LRCT	13519			PPER2	9687		
				FLX 2009(PE-2X) LRCT	9568		
				Brangus	9553		
				SHXFL 2009 (2X) ME	9180		
				FLXSH 2009 (2X) ME	8722		

TABLE 8. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT SAND MOUNTAIN REC BASED ON THREE-YEAR AVERAGES, 2008-2010.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
		---------- % of total seasonal yield ----------		
Sand Mountain Research and Ext. Ctr.				
Marshall		47	53	5715
Jackson		49	51	5613
Wax ME-94		48	52	5548
Flying A		47	53	5539
Wax ME-4		48	52	5464
Tam 90		47	53	5410
DH-3		49	51	5317
Gulf (Local)		48	52	5308
Passerel Plus		49	51	5266
TAMTBO		46	54	5258
Rio		51	49	5220
Diamond T		46	54	5214
Prine		44	56	5200
Maximus		44	56	5182
Jumbo		45	55	4790

continued

TABLE 9. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT PLANT BREEDING UNIT BASED ON THREE-YEAR AVERAGES, 2008-2010.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	---------- % of total seasonal yield ----------			
Plant Breeding Unit				
Wax ME-4	29	42	29	6479
Flying A	30	45	24	6140
Marshall	25	47	28	6101
Jumbo	28	43	29	6053
DH-3	33	41	26	5996
Maximus	26	46	28	5935
Wax ME-94	26	45	29	5918
Jackson	29	43	28	5887
Diamond T	32	42	26	5852
Rio	30	44	26	5801
Prine	24	44	32	5722
TAMTBO	28	40	32	5632
Passerel Plus	31	43	26	5608
Gulf (Local)	26	47	27	5367
Tam 90	27	47	27	5341

continued

TABLE 10. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT WIREGRASS REC BASED ON THREE-YEAR AVERAGES, 2008-2010.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	---------- % of total seasonal yield ----------			
Wiregrass Research and Ext. Ctr.				
Diamond T	28	53	19	13736
TAMTBO	25	55	20	13677
Prine	25	54	20	13635
Wax ME-4	24	58	19	13445
Maximus	25	55	21	13400
Jumbo	23	56	21	13262
DH-3	26	58	15	13174
Flying A	29	54	17	13158
Rio	25	60	15	13032
Wax ME-94	24	58	18	13028
Marshall	23	60	17	13026
Gulf (Local)	25	59	16	12700
Tam 90	23	61	16	12455
Jackson	24	59	17	12378
Passerel Plus	25	61	15	12309

continued

TABLE 11. SEASONAL DISTRIBUTION OF RYEGRASS PRODUCTION AT GULF COAST REC BASED ON THREE-YEAR AVERAGES, 2008-2010.

Brand-Variety	Fall	Early spring	Late spring	3-yr avg
	---------- % of total seasonal yield ----------			
Gulf Coast Research and Ext. Ctr.				
Marshall	29	51	20	9554
Flying A	31	52	17	9514
Diamond T	32	49	19	9448
Wax ME-4	30	52	18	9377
Jackson	29	54	17	9324
Rio	30	53	17	9303
Wax ME-94	28	54	18	9268
TAMTBO	31	50	19	9179
DH-3	30	54	17	9137
Prine	29	51	20	9101
Maximus	30	51	19	9023
Passerel Plus	28	55	17	8989
Gulf (Local)	30	54	16	8947
Tam 90	28	54	18	8904
Jumbo	29	52	19	8800

SOURCES OF RYEGRASS SEED

Cultivar	Company
Bulldog Grazer	Athens Seed Co., Watkinsville, Georgia
Jumbo Maximus	Barenbrug USA, Tangent, Oregon
Brangus HS1	Humble Solutions LLC, Harrisburg, Oregon
B-7,1366 KB Royal	KB Seed Solutions, Harrisburg, Oregon
Prine	Ragan & Massey. Inc., Ponchatoula, Louisiana
DH-3 Diamond T Flying A TAMTBO Winterhawk	OreGro Seeds, Inc., Shedd, Oregon
Gulf (Local Source)	Piedmont Fertilizer Co., Opelika, Alabama
Passerel Plus PPERC2	Pennington Seed, Inc., Lebanon, Oregon
Rio	ProSeeds Marketing, Inc., Jefferson, Oregon
TAM 90 TXR 2006-T22	Texas A & M University, College Station, Texas
Jackson Marshall WAX ME-94 WAX ME-4	The Wax Company, LLC, Amory, Mississippi
M/FL X2009(4x)ER FLX2009 Red 4x late FL X2009 (PE-2x) LRCT FLXSH 2009 (2x) ME SHXFL 2009 (2x) ME	University of Florida, Gainesville, Florida