Sumrall 007 Bermudagrass

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Sumrall 007 was developed by Gerald Sumrall in Monticello, Mississippi. (5) Sumrall is natural selection originating from a field that was planted to Callie, Tifton 44 and Pasto Rico bermudagrasses. The selection was recognized in 1989 by Mr. Sumrall, who has numerous years experience with bermudagrasses, as an outstanding plant. After discussion with forage agronomists at Mississippi State University, he was encouraged to continue development of this line by having it compared to know varieties. Dr. David Lang, Forage Agronomist at Mississippi State was the first to grow the new grass in test plots. Dr. Lang established plots of Sumrall in the spring of 1996 comparing it to Coastal, Tifton 44, Tifton 85 and a couple of other local ecotypes. (1) In 1997, Dr. Daren Redfearn at Southeast Research Station, Franklinton, Louisiana, established a test comparing Sumrall to 21 other varieties or ecotypes. (4) Sumrall was also entered into a test at the Coastal Plain Branch Experiment Station in Newton Mississippi in 1997, comparing it to standard varieties such as, Alicia, Coastal, Grazer, Tifton 44 and Tifton 85. (2) A study was established in north Mississippi at the North Mississippi Branch Experiment Station in 1998 to compare Sumrall to Coastal, Tifton 44 and a couple of local ecotypes. (3) In 1999 and 2000 plantings have been made in several surrounding states. (5)

In a study at Mississippi State planted in June 14, 1996, the highest yields in 1997, were produced by Sumrall, 4,670 pounds per acre, followed by Coastal and Tifton 85 with 4,343 and 4320 pounds per acre. Digestible dry matter for Sumrall, 63.0% was significantly higher for Coastal, 61.7% in the first harvest. There was no difference in digestibility for the second harvest among cultivars. There were no differences in digestibility of Sumrall, Coastal and Tifton 85 for the third harvest. Table 1. In 1998, the second year after establishment, the highest yields were produced by Sumrall, 8,703 pounds per acre, and 7,898 for Tifton 85 compared to 7,640 for Coastal. Table 2. In another study at Mississippi State, Sumrall and Tifton 85 had 78 and 70 percent ground cover in July of 1997, approximately five weeks after planting compared to 19 and 23 percent for Coastal or Tifton 44. Table 3. Total yield for the season was highest for Tifton 85 and Sumrall, 2,411 and 2,094 pounds per acre compared to 801 and 646 pounds per acre Coastal and Tifton 44.

In a study at the Coastal Plain Experiment Station in Newton, Sumrall was added to an existing two-year-old variety trial in 1996. In 1997, the year after establishment, Sumrall produced 8,461 compared to 9,580 for Tifton 85. Table 4. In 1998, Sumrall produced 7,196 compared to 7,230 for Tifton 85. Table 5.

At the North Mississippi Experiment Station in Holly Springs, Sumrall was compared to Coastal, Tifton 44 and a local ecotype, McDonald, in a planting made in July of 1998. Percent

stand in June of 1999 was 85% for Sumrall compared to 50 and 28% for Coastal and Tifton 44. Total yields for the year after establishment were highest for Sumrall and McDonald 5,055 and 5,428 compared to 2944 and 2164 for Coastal and Tifton 44. Table 6.

In a study conducted by Dr. Daren Redfearn at the Southeast Research Station in Franklinton Louisiana, Sumrall was compared to 21 other cultivars or ecotypes. In 1998, the yield produced by Sumrall in the first harvest, 8,448 pounds per acre, was significantly higher than all others. There was no difference in the total yield produced by Tifton 85 and Sumrall, 19,094 and 20,431, which were significantly higher than all other varieties. Table 7. Nine of the cultivars were selected and analyzed for crude protein (CP), neutral detergent fiber (NDF), acid detergent fiber (ADF) and in vitro true digestibility (IVTD) for the four harvests in 1998 by the Feed Testing Laboratory, at the Southeast Research Station. For the harvest made in June, the CP of Sumrall was equal to Tifton 85 and all others except Coastal, which was significantly higher. The NDF and ADF for Sumrall were equal to all other cultivars, except Coastal, which was significantly lower. The IVTD of Sumrall was equal to all others except Russell, which was significantly lower. Table 8. For the harvest made on July 8, 1998, the CP of Sumrall was equal to all other cultivars, except Alicia and Hardie, which were significantly higher. There were no significant differences in NDF, ADF, or IVTD for any cultivar. Table 9. For the harvest made in August 10, 1998, the CP of Sumrall was equal to all other cultivars except Common, which was significantly higher. The NDF content of Sumrall was equal to all other cultivars, except Coastal and Common, which were significantly lower. ADF content of Sumrall was equal to all others, except Common which was significantly lower. The IVTD of Sumrall was equal to all other cultivars, except Common was significantly higher. Table 10. For the harvest made on September 14, 1998, there were no significant differences in CP content of any cultivar. The NDF content of Sumrall was equal to other cultivars, except Coastal and Common, which were significantly lower. There was no significant difference in ADF content of Sumrall compared to the other cultivars. The IVTD of Sumrall was equal to all cultivars, except Russell, Common and Coastal, which were higher. Table 11. In 1999, Sumrall had a high first harvest yield, but it was not significantly higher than Tifton 85. Total yields produced by Tifton 85 and Sumrall, 26,654 and 25,463 pounds per acre, were significantly higher than all other named cultivars. Table 12.

Literature Cited

1. Edwards, N., W. Burdine, R. Elmore, C. Hovermale, D. Ingram, R. Ivy, B. Johnson, D. Lang, and G. Pederson. 1998 Forage Crop Variety trials. 1998. Mississippi Agricultural and Forestry Experiment Station, Information Bul. 342.
2. Edwards, N., R. Elmore, C. Hovermale, D. Ingram, R. Ivy, B. Johnson, and D. Lang. 1999 Forage Crop Variety trials. 1999. Mississippi Agricultural and Forestry Experiment Station, Information Bul. 356
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4. Redfearn, Daren. 1999. Personal Communication
5. Sumrall, Gerald. 2000. Personal Communication

Table 1. Yield and quality of bermudagrass lines in 1997, Mississippi State, MS.

Variety	6/04/97	DDM	7/10/97	DDM	8/22/97	DDM	Total
	--lb/A--	--%--	--lb/A--	--%--	--lb/A--	--%--	lb/A-
Coastal	1434	61.7	1559	64.3	1350	63.6	4343
Lott	1153	63.1	1356	63.5	1680	61.9	4189
Poplarville	964	60.6	1073	64.8	1091	63.7	3128
Sumrall	1445	63.0	1559	64.9	1667	63.8	4670
Tifton 44	1163	61.9	1612	63.6	1053	63.0	3828
Tifton 85	1305	62.3	1727	63.8	1289	61.9	4320
Mean	1244	62.1	1481	63.1	1355	63.0	4080
LSD(0.05)	287	1.8	370	2.0	357	1.3	774
CV%	15	1.7	17	2.7	17	2.2	13

Mean followed by the same letter within each column were not significantly difference.
DDM = Digestible Dry Matter
Established: 6/14/96

Fertilizer:	50-0-0/A	3/27/97	Limed 1 T/A	4/01/97
	50-0-0/A	6/12/97	50-0-0/A	7/11/97
	55lb/A Sulfur	7/17/97		

Table 2. Dry matter yield and stand of experimental bermudagrasses, Mississippi State, MS, 1998.

	Harvest dates								
	5/28/98		6/24/98		7/22/98		8/19/98		Total
Variety/line	yield	stand	yield	stand	yield	stand	yield	stand	yield
	lb/A	pct	lb/A	pct	lb/A	pct	lb/A	pct	lb/A
Coastal	1553	79	1835	94	2564	90	1689	82	7640
Lott	1424	81	1220	84	1832	98	1763	80	6239
Poplarville	1028	90	1183	97	1956	100	1440	99	5607
Sumrall 007	2460	97	1592	99	2514	99	2138	99	8703
Tifton 44	1354	66	1413	81	1763	85	1262	53	5792
Tifton 85	1592	75	1872	89	2468	95	1966	97	7898
Mean	1568	81	1518	91	2183	94	1710	83	6980
LSD(0.05)	693	18	525	15	875	12	597	21	2064
CV%	29	15	23	11	27	8	23	17	20

Planting date:	6/04/96					
Fertilization:	4/16/98	75-25-50	6/30/98	60-20-40	7/24/98	50-0-0
	8/24/98	28-84-84	10/04/98	1 t/A lime	10/02/98	0-0-90
Herbicide:	4/08/98	0.2oz/A Ally				

Table 3. Dry matter yield and ground cover of experimental bermudagrasses, Mississippi State, MS, 1997.[1]

	Harvest dates					
	7/21/97	8/14/97		9/05/97		
Variety/line	ground cover	yield	ground cover	yield	ground cover	Total yield
	pct	lb/A	pct	lb/A	pct	lb/A
Coastal	19	210	52	591	71	801
Lott	68	1136	87	911	100	2047
McDonald	16	92	34	141	40	233
Sumrall 007	78	1096	98	998	100	2094
Tifton 44	23	246	61	440	66	646
Tifton 85	70	1410	95	1001	100	2411
Mean	45	698	71	674	80	1372
LSD(0.05)	17	333	27	341	12	547
CV%	25	32	25	34	10	26

[1]Planting date:	6/13/97				
Fertilization:	7/15/97	50-0-0	8/15/97	50-0-0	
Herbicide:	6/14/97	l lb/A Diuron			

Table 4. Bermudagrass variety trial, Coastal Plain Branch, Newton, MS, 1998.

	Dry matter yield				
	Harvest dates				
Variety	6/09/98	7/09/98	8/19/98	8/21/98	Total
	lb/A				
Alicia	3603	2573	2519	581	9276
Coastal	2957	2665	2459	650	8731
Common	1081	1867	1948	232	5127
Grazer	756	1774	2080	130	4739
Hardie	1879	1713	1905	228	5724
Landcaster	791	2031	1277	342	4440
Lott	1816	1681	2202	1060	6760
Murphy	2331	2282	2440	325	7377
Poplarville	1925	2088	1734	84	5831
Sumrall	2350	2341	2802	968	8461
Tifton 44	3245	2334	2787	523	9288
Tifton 78 WH	2905	2422	2474	994	8795
Tifton 78	2799	2307	2439	1302	8847
Tifton 85	2748	2662	3051	969	9580
Mean	2231	2224	2294	599	7348
LSD(0.05)	498	526	417	343	989
CV%	16	17	13	40	9

Lott and Sumrall were not planted until 1996.

Table 5. Bermudagrass variety trial, Coastal Plain Branch, Newton, MS, 1999.

	Dry matter yield				
	Harvest dates				2-year
Variety	6/17/99	7/20/99	9/02/99	Total	average
	lb/A				
Alicia	1765	3158	1407	6330	7803
Coastal	1216	3363	1568	6147	7439
Common	871	2559	827	4257	4692
Grazer	244	2198	592	3034	3886
Hardie	907	2381	410	3698	4711
Landcaster	205	2214	622	3041	3741
Lott	1456	2642	1612	5709	6234
Murphy	1073	3070	959	5102	6240
Poplarville	403	2339	585	3331	4581
Sumrall	2027	3589	1580	7196	7829
Tifton 44	1272	3197	1852	6321	7805
Tifton 78 WH	1755	3228	1940	6923	7859
Tifton 78	1743	2979	1874	6595	7721
Tifton 85	1810	3609	1811	7230	8405
Mean	1196	2895	1260	5351	
LSD(0.05)	361	332	610	912	
CV%	21	8	34	12	
Planting date:	04/19/94				
Fertilization:	04/02/98	1 T/A lime	04/13/99	65-65-65	
	06/17/99	34-0-0	07/20/99	68-0-0	

Table 6. Dry matter production and stand ratings of experimental bermudagrasses, Holly Springs, MS, 1999.

	Harvest and rating dates						
	6/01/99		7/09/99	8/16/99	9/21/99		
Variety/Line	Yield	Stand	Yield	Yield	Yield	Stand	Total
	lb/A	--%--	lb/A	lb/A	lb/A	--%--	lb/A-
Coastal	542	50	1012	820	570	67.5	2944
McDonald	1565	90	1625	1204	1034	100.0	5428
Sumrall 007	1450	85	1465	1132	1008	91.2	5055
Tifton 44	556	28	636	508	464	44.5	2164
Mean	1028	63	1184	916	769	75.8	3898
Planting date:	7/01/98						
Fertilization:	7/15/98	66-0-0;	4/15/99	60-40-80;	6/07/99	50-0-0;	
	8/18/99	50-0-0;	10/04/99	0-60-60			

Table 7. Dry matter yields of bermudagrass varieties, Southeast Research Station, Franklinton, LA, 1998.

	Harvest dates				
Variety	June	July	August	September	Total
	----------lb/A----------				
Alicia	3083	821	2628	5436	11968
CD90160	679	692	2708	6675	10754
Coastal	1639	1815	3607	5538	12598
Common	639	358	2109	6728	9834
ED5	715	625	2587	5351	9278
Gillihan	1311	1256	3085	5637	11289
Hardie	3307	719	3188	6127	13340
Lancaster	0	289	3039	695	10242
LD3	800	508	3223	5081	8721
Lott	4037	1794	3836	5940	15608
Murphy	1997	588	2350	5208	10142
Poplarville	2248	601	2141	6666	11657
Poplarville 1E	6566	701	3081	5317	15665
Poplarville 2	4466	1104	2981	6603	15154
Russell	2928	868	3575	4950	12321
Southeast	2662	1232	3458	5567	12919
Sumrall	8448	1368	3684	6931	20431
Tanberg	1749	1488	3423	4772	11431
Tierra verda	534	1154	2727	4686	9100
Tifton 44	2042	1703	3108	5113	11965
Tifton 78	1253	1241	3774	4892	11161
Tifton 85	6360	2260	4270	6160	19049
Mean	2305	1032	3006	5691	12033
LSD(0.05)	1256	677	836	1441	2418
CV%	33	8	17	15	12

Table 8. Crude protein (CP), neutral detergent fiber (NDF), acid detergent fiber (ADF), and in vitro true digestibility (IVTD) of nine bermudagrass varieties harvested on June 9, 1998 at the Southeast Research Station, Franklinton, LA.

Variety	CP	NDF	ADF	IVTD
	---------- % ----------			
Alicia	10.6	75.3	37.7	64.6
Coastal	15.2	67.3	29.1	73.0
Common	10.4	73.2	33.0	71.9
Hardie	8.9	75.0	35.4	69.1
Lott	8.3	78.1	37.0	66.2
Russell	10.2	74.9	35.7	63.9
Sumrall	6.7	73.5	34.8	68.9
Tifton 44	12.1	75.0	34.4	69.0
Tifton 85	8.9	75.4	35.6	68.9
LSD(0.05)	3.4	3.1	2.1	4.3

Table 9. Crude protein (CP), neutral detergent fiber (NDF), acid detergent fiber (ADF), and in vitro true digestibility (IVTD) of nine bermudagrass varieties harvested on July 8, 1998 at the Southeast Research Station, Franklinton, LA.

Variety	CP	NDF	ADF	IVTD
	---------- % ----------			
Alicia	17.1	70.9	31.9	73.6
Coastal	14.9	69.5	31.5	73.2
Common	11.9	72.1	31.3	73.4
Hardie	16.1	70.5	30.0	74.6
Lott	15.0	72.3	32.4	72.8
Russell	17.2	71.5	31.6	75.5
Sumrall	13.3	68.7	31.8	73.7
Tifton 44	14.8	71.3	30.9	74.1
Tifton 85	14.7	71.9	33.1	74.0
LSD(0.05)	2.0	NS	NS	NS

Table 10. Crude protein (CP), neutral detergent fiber (NDF), acid detergent fiber (ADF), and in vitro true digestibility (IVTD) of nine bermudagrass varieties harvested on August 10, 1998 at the Southeast Research Station, Franklinton, LA.

Variety	CP	NDF	ADF	IVTD
	----------	----------	% ----------	----------
Alicia	11.2	75.0	37.6	65.2
Coastal	11.6	72.4	36.4	69.0
Common	12.9	68.5	33.5	73.3
Hardie	9.8	75.4	36.8	64.7
Lott	9.8	77.3	38.5	66.0
Russell	10.5	74.2	37.4	66.9
Sumrall	10.2	76.2	38.0	65.3
Tifton 44	10.4	75.0	37.7	64.9
Tifton 85	9.6	76.5	38.0	68.1
LSD(0.05)	2.1	3.2	2.2	5.4

Table 11. Crude protein (CP), neutral detergent fiber (NDF), acid detergent fiber (ADF), and in vitro true digestibility (IVTD) of nine bermudagrass varieties harvested on September 14, 1998 at the Southeast Research Station, Franklinton, LA.

Variety	CP	NDF	ADF	IVTD
	----------	----------	% ----------	----------
Alicia	12.2	72.3	35.8	68.4
Coastal	13.4	68.0	34.1	76.1
Common	12.4	66.7	35.3	78.3
Hardie	11.5	71.3	33.6	68.7
Lott	10.1	75.8	39.7	72.6
Russell	14.2	68.8	33.2	73.6
Sumrall	11.4	73.3	34.0	68.9
Tifton 44	12.1	72.4	34.2	71.0
Tifton 85	12.2	74.2	35.3	71.6
LSD(0.05)	NS	4.1	2.0	4.0

Table 12. Dry matter yields of bermuagrass varieties, Southeast Research Station, Franklinton, LA, 1999.

	Harvest dates					
Variety	5/03/99	6/01/99	6/28/99	8/09/99	9/09/99	Total
	----------lb/A----------					
Alicia	4981	2301	5495	7193	1290	21261
CD90160	3066	1877	4670	5967	705	16285
Coastal	4090	2895	5456	6590	1184	20215
Common	859	1065	4612	6707	533	13776
ED5	3464	1282	3106	3668	162	11683
Gillihan	3531	2045	5143	7633	1051	19403
Hardie	4689	1824	4884	8625	1187	21209
Lancaster	706	1245	3879	5683	244	11757
LD3	4002	1479	3523	4150	296	13450
Lott	6099	2580	7175	8162	2330	26345
Murphy	3388	1706	4367	6214	506	16182
Poplarville	2370	1976	4305	6020	329	15000
Poplarville 1E	7001	1939	5414	7390	876	22619
Poplarville 2	5952	2244	5620	7781	1277	22874
Russell	5903	2269	4941	7225	1191	21529
Southeast	6508	1933	5092	8571	1124	23228
Sumrall	7462	2694	5434	8164	1709	25463
Tierra verda	899	998	4128	6736	577	13338
Tifton 44	5082	2285	4866	6117	580	18929
Tifton 85	6152	3330	6514	8202	2457	26654
Mean	4310	1998	4931	6840	980	19060
LSD(0.05)	1539	627	1211	1084	370	2637
CV%	25	22	17	11	27	10

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