Performance of Ryegrass Varieties in Alabama, 1984

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Gale A. Buchanan, Director
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PERFORMANCE OF RYEGRASS VARIETIES IN ALABAMA, 1984

W. C. Johnson and Darrell Williams[1]

The Alabama Ryegrass Variety Test is a continuing evaluation of available varieties and breeding lines from private companies and state agricultural experiment stations. Tests are planted in three locations, northern, central, and southern, to evaluate the varieties under the different environmental conditions of these regions of Alabama. The tests are conducted by experiment station personnel and the results presented in a fair and unbiased manner.

Experimental Procedure and Discussion

Ryegrass entries were seeded at a 20-pound-per-acre rate in rows 6 inches apart, using plots 4 x 20 feet with four replications. A good stand was obtained at each location after the late-September 1983 planting dates. The extremely cold December and January weather restricted winter growth, but all varieties at all locations survived and produced well in the spring.

The tests were fertilized with phosphorus and potassium according to soil test. At planting, nitrogen was applied at the rate of 50 pounds N per acre. An additional 50 pounds of N was applied per acre after each cutting to allow the varieties to perform at their maximum yield

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[1]Professor and Research Associate, Department of Agronomy and Soils.

potential. The plots were harvested when the ryegrass reached 6-10 inches with a flail type harvester to a 2-inch stubble. A herbage sample of approximately 1 pound was taken from each plot at each harvest for determining forage dry matter percentage, for converting green weights to dry matter.

The Plant Breeding Unit at Tallassee, despite extremely cold weather, produced excellent yields of forage. The ryegrass was cut nine times, with the test's average yield of all entries being almost 5 tons of dry forage.

Marshall continued to be among the highest in total herbage production throughout Alabama and is especially outstanding in late winter/early spring production. Urbana, a variety entered by Van Der Have Seeds of the Netherlands and tested in Alabama for the second year, shows similiar yield capability to Marshall at all three test locations. Marshall's and Urbana's consistent high ranking shows their productive ability under most Alabama conditions.

Planning ways to meet seasonal forage needs is an important consideration for cattle producers. Tables 7, 8, and 9 show 3-year average seasonal distribution of forage for the varieties tested. Autumn yield at the Gulf Coast Substation is often restricted by low rainfall, but is compensated for by high production during the mild, moist winter. Little or no forage production can be expected during the usually severe winter in the Sand Mountain area of northern Alabama.

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Table 1. Seasonal Dry Matter Yield of Ryegrass Varieties at the Gulf Coast Substation, Fairhope, Alabama, 1983-84

Brand-variety	Harvest date 12/16	2/14	3/01	3/19	4/04	4/19	5/09	Season total	
	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	
Marshall	1,818	732	1,138	1,413	1,247	1,034	675	8,057	a*
Urbana	1,581	631	1,034	868	1,200	1,168	557	7,040	b
Bison	,899	370	1,032	1,206	1,358	1,236	595	6,696	bc
PS 1005	1,469	340	690	1,086	1,134	1,012	655	6,386	bcd
Pioneer 7F 3M	1,712	751	834	792	686	824	632	6,231	bcde
Ninak	1,249	556	795	769	1,022	1,201	530	6,121	bcdef
Shannon	885	497	845	1,010	995	1,112	487	5,832	cdefg
Florida 80	1,479	811	929	978	445	641	473	5,757	cdefg
Gulf	1,273	427	757	1,045	785	670	672	5,630	defg
Pioneer 5M 5F	1,056	712	948	981	648	769	501	5,616	defg
Penploid 4	1,217	418	661	924	1,009	648	444	5,321	efg
Vanderhave HI 77	875	618	686	864	717	906	525	5,192	fg
Tetrablend 444	1,024	393	637	810	773	603	664	4,904	g
Mean Yield	1,272	558	845	981	925	910	570	6,060	
C.V. (%)	26	29	28	16	22	17	16	10	

*Yields in this column followed by the same letter are not different, P=.05.

Planted: September 26, 1983

Soil: Marlboro fine sandy loam.

Table 2. Seasonal Dry Matter Yield of Ryegrass Varieties at the Plant Breeding Unit, Tallassee, Alabama, 1983-84

Brand-variety	Harvest date									Season total	
	12/1	12/16	3/1	3/19	3/29	4/11	4/26	5/14	6/7		
	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	
Marshall	1,864	348	974	1,202	943	1,553	1,678	2,374	402	11,337	a*
Ninak	1,665	342	744	1,022	780	1,440	1,619	2,223	525	10,360	b
Urbana	1,761	311	607	859	641	1,511	1,630	2,409	487	10,216	bc
Pioneer 5M5F	1,336	270	1,082	1,163	459	1,415	1,623	2,100	658	10,106	bcd
Shannon	1,475	316	637	1,015	645	1,533	1,620	2,342	508	10,090	bcd
Pioneer 7F3M	1,484	266	1,192	1,163	419	1,281	1,532	1,870	473	9,681	bcd
Rison	1,107	232	555	886	787	1,681	1,737	2,428	197	9,610	bcd
Penploid 4	1,745	305	636	899	535	1,051	1,407	2,085	605	9,267	cd
PS 1005	1,473	340	363	833	777	1,468	1,591	2,095	322	9,263	cd
Gulf	1,162	357	590	1,328	679	1,157	1,606	1,972	405	9,255	cd
Tetrablend 444	1,418	288	343	902	624	1,275	1,552	2,227	588	9,217	cd
Florida 80	1,795	334	1,143	977	302	1,050	1,426	1,628	365	9,020	d
Vanderhave HI 77	1,436	252	392	677	469	1,079	1,387	2,085	572	8,348	e
Mean yield	1,517	305	712	994	620	1,346	1570	2,141	470	9,674	
C.V. (%)	17	18	16	13	12	14	8	10	26	7	

*Yields in this column followed by the same letter are not different, P=.05.

Planted: September 28, 1983.

Soil: Cahaba fine sandy loam.

Table 3. Seasonal Dry Matter Yield of Ryegrass Varieties at the Sand Mountain Substation, Crossville, Alabama, 1983-84.

Brand-variety	Harvest date 11/21	4/11	5/1	5/16	5/30	Season total
	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.
Marshall	908	1,544	2,023	1,156	994	6,626 a*
Ninak	1,408	1,069	1,461	1,495	841	6,274 a
Urbana	1,110	1,072	1,304	1,771	779	6,036 ab
Shannon	972	829	1,398	1,589	841	5,629 bc
Pioneer 5M5F	755	1,521	1,166	1,552	588	5,581 bc
Florida 80	852	2,044	918	1,268	452	5,535 bc
Pioneer 7F3M	721	1,980	950	1,208	494	5,353 cd
PS 1005	855	1,113	1,349	1,248	718	5,283 cd
Tetrablend 444	862	1,021	1,443	1,282	633	5,242 cd
Penploid 4	1,111	936	1,378	1,095	632	5,153 cd
Gulf	517	1,473	1,253	1,176	699	5,119 cd
Bison	526	763	1,336	1,579	846	5,050 cd
Vanderhave HI 77	953	618	1,272	1,336	623	4,802 d
Mean yield	889	1,229	1,327	1,366	703	5,514
C.V. (%)	24	19	12	18	11	8

*Yields in this column followed by the same letter are not different, P=.05.

Planted: September 27, 1983.

Soil: Hartsells fine sandy loam.

Table 4. Two-Year Average Dry Matter Yield of Ryegrass Varieties at the Gulf Coast Substation, Fairhope, Alabama

Brand-variety	1982-83	1983-84	2-year average
	Lb./a.	Lb./a.	Lb./a.
Marshall	6,919	8,057	7,488
Urbana	7,667	7,040	7,354
Pioneer 5M5F	7,476	5,616	6,546
Ninak	6,348	6,121	6,235
Penploid-4	7,110	5,321	6,216
Florida 80	6,440	5,757	6,098
Shannon	6,153	5,832	5,992

Table 5. Two-Year Average Dry Matter Yield of Ryegrass Varieties at the Plant Breeding Unit, Tallassee, Alabama

Brand-Variety	1982-83	1983-84	2-year average
	Lb./a.	Lb./a.	Lb./a.
Marshall	13,645	11,337	12,491
Urbana	13,660	10,216	11,938
Ninak	13,188	10,360	11,774
Pionner 5M5F	13,003	10,106	11,554
Shannon	12,935	10,090	11,512
Penploid-4	12,856	9,267	11,062
Florida 80	12,033	9,020	10,526

Table 6. Two-Year Average Dry Matter Yield of Ryegrass Varieties at the Sand Mountain Substation, Crossville, Alabama

Brand-variety	1982-83	1983-84	2-year average
	Lb./a.	Lb./a.	Lb./a.
Urbana	6,520	6,036	6,278
Ninak	5,962	6,274	6,118
Shannon	6,287	5,629	5,958
Marshall	5,262	6,626	5,944
Pioneer 5M5F	6,082	5,581	5,832
Florida 80	5,684	5,535	5,610
Penploid-4	5,865	5,153	5,509

Table 7. Three-year Average Seasonal Dry Matter Production of Ryegrass Varieties at Gulf Coast Substation, 1982-84

Entry	Season				Total
	Autumn	Winter	Early spring	Late spring	
	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.
Marshall	----	2,235	4,639	3,459	10,333
Gulf*	----	1,950	3,207	3,697	8,854
Penploid-4	----	1,929	3,695	2,739	8,363
Florida 80	----	1,777	3,534	2,868	8,179
Shannon	----	1,147	3,298	2,605	7,050

*Gulf yields are taken from 1981, 1982, and 1984 data.

Table 8. Three-year Average Seasonal Dry Matter Production of Ryegrass Varieties at Plant Breeding Unit, 1982-84

Entry	Season				Total
	Autumn	Winter	Early spring	Late spring	
	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.
Marshall	2,160	465	4,362	3,833	10,820
Shannon	1,870	586	3,580	3,350	9,386
Penploid-4	2,416	596	2,982	3,371	9,365
Florida 80	2,030	543	3,466	2,761	8,800
Gulf*	967	1,093	3,253	3,183	8,496

*Gulf yields are taken from 1981, 1982, and 1984 data.

Table 9. Three-year Average Seasonal Dry Matter Production of Ryegrass Varieties at Sand Mountain Substation, 1982-84

Entry	Season				Total
	Autumn	Winter	Early spring	Late spring	
	Lb./a.	Lb./a.	Lb./a.	Lb./a.	Lb./a.
Marshall	303	----	2,702	3,186	6,191
Shannon	324	----	2,240	3,220	5,784
Penploid-4	370	----	2,317	2,853	5,540
Florida 80	284	----	1,716	2,808	4,808
Gulf*	172	----	2,486	2,069	4,727

*Gulf yields are taken from 1981, 1982, and 1984 data.

SOURCES OF RYEGRASS SEED

Brand-variety	Sources
Florida 80	Florida Agr. Exp. Sta., Gainesville, Florida
Marshall	Funk Seeds Int., Alexandria, Louisiana
Bison	International Seeds, Inc., Halsey, Oregon
Gulf	Montgomery Seed Co., Montgomery, Alabama
Tetrablend 444	Northrup King Co., Columbus, Mississippi
PS 1005	Pacific Seed Production Co., Albany, Oregon
Penploid-4	Pennington Seed Inc., Madison, Georgia
Shannon Pioneer 5M5F Pioneer 7F3M	Pioneer Hi-Bred, Int., Tipton, Indiana
Ninak Urbana Vanderhave HI 77	D. J. Van Der Have Seeds, Rilland, Netherlands