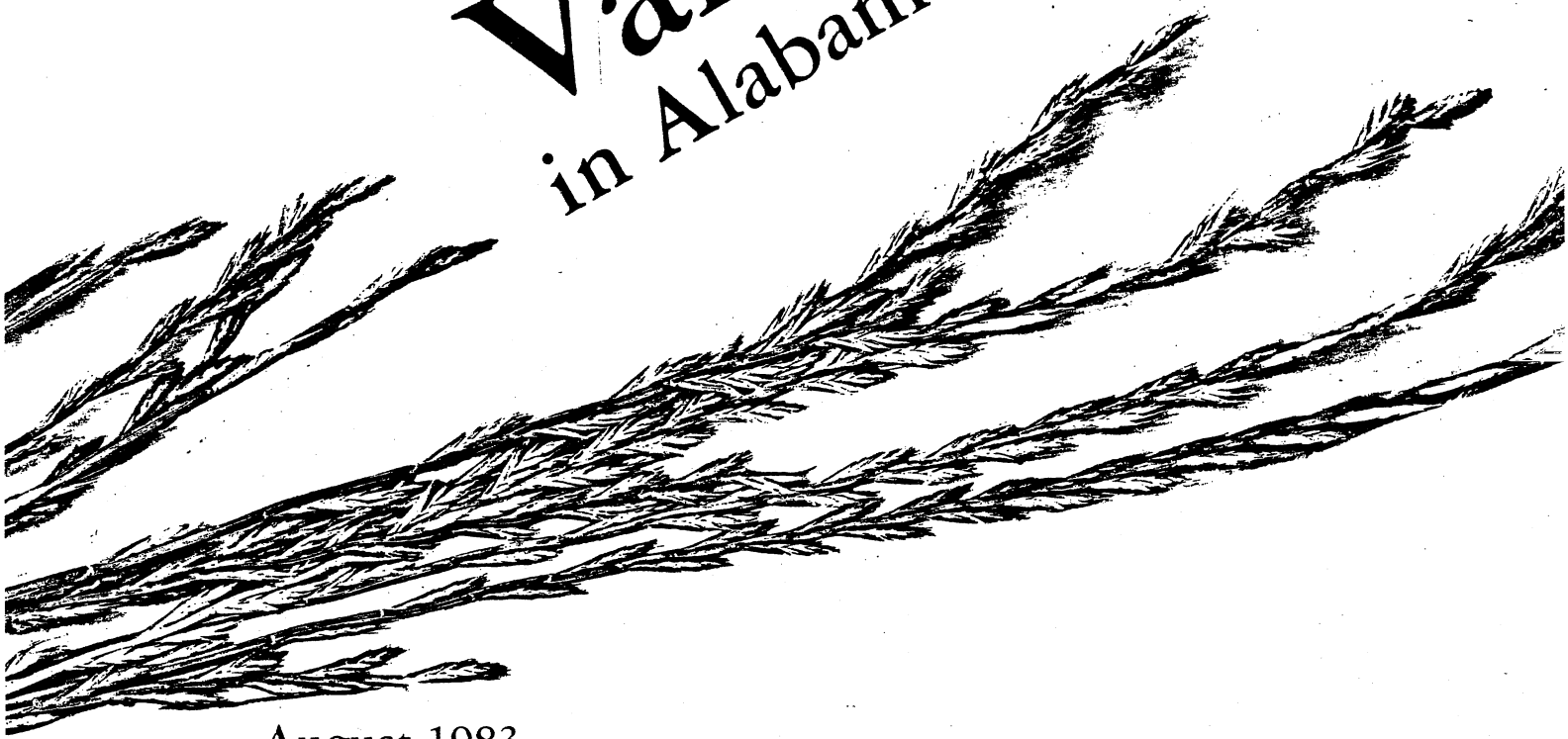
Performance of Ryegrass Varieties in Alabama, 1983



August 1983

Department of Agronomy & Soils
Alabama Agricultural Experiment Station
Gale A. Buchanan, Director

Departmental Series No. 84
Auburn University
Auburn University, Alabama

PERFORMANCE OF RYEGRASS VARIETIES IN ALABAMA, 1983

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 northern, central, and southern locations to evaluate the varieties under the different environmental conditions of these regions of Alabama during the growing season. The tests are conducted by experiment station personnel in order to present the results 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 acquired after the mid-September planting dates except at the Gulf Coast Substation. The unusually dry fall there forced the replanting of the test on October 18, and virtually eliminated any fall forage growth.

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 after each cutting

---

[1]Professor and Technical Assistant, Department of Agronomy and Soils.

to allow the varieties to show their maximum yield potential. Plots were harvested with a flail type harvester. A herbage sample of approximately 500 grams was taken from each plot at each harvest for determining forage dry matter percentage, which is used in converting green weights to dry matter.

The Plant Breeding Unit at Tallassee had an excellent forage season. The ryegrass was cut eight times with the test's average yield of all entries being 6 1/2 tons of dry forage.

Marshall continues 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 first time, showed the highest total herbage yield at all three test locations. Its yield was not statistically different (P = .05) from approximately half of the remaining entries, but its consistent high ranking shows it has promise for most Alabama conditions.

Planning ways of meeting seasonal forage needs is an important consideration for cattle farmers. Tables 7 and 8 show 3-year average yields for the ryegrass production season. A 3-year average is a more representative method of ranking the performance of competing ryegrass varieties.

ACKNOWLEDGMENTS

Appreciation is expressed to W. H. Hearn and Mrs. Sally Bagwell, Research Data Analysis, for the data processing of this report. We also acknowledge the contributions of E. L. Carden and N. R. McDaniel, Gulf Coast Substation, J. T. Eason and M. E. Ruf, Sand Mountain Substation, and L. L. Walker, Plant Breeding Unit, for growing and harvesting the experiments.

Table 1. Seasonal Dry Matter Yield of Ryegrass Varieties at the Gulf Coast Substation, Fairhope, Alabama, 1982-83

Variety	Harvest date 1/07	2/25	3/29	4/18	5/31	Season total
	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.
Urbana	933	1,227	2,920	1,501	1,085	7,667 a*
Pioneer 5M5F	741	1,490	3,007	1,191	1,047	7,476 a
MOM LMW 213	751	920	2,716	1,602	1,327	7,316 ab
Penploid-4	1,066	1,299	2,641	1,212	893	7,110 abc
Marshall	427	692	3,296	1,321	1,183	6,919 abcd
MOM LMW 96	961	1,204	2,428	1,270	704	6,567 bcde
Florida 80	216	1,158	2,941	1,025	1,101	6,440 cdef
Ninak	409	811	2,606	1,472	1,049	6,348 cdef
Shannon	458	798	2,416	1,397	1,084	6,153 def
Vanderhave HW 73	346	1,130	2,475	1,206	805	5,963 ef
Vanderhave HI 71	178	672	2,259	1,514	1,095	5,718 f
Mean yield	590	1,037	1,700	1,337	1,034	6,698
C.V. (%)	23	21	10	14	13	8

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

Planted: October 18, 1982.

Soil: Marlboro fine sandy loam.

Table 2. Seasonal Dry Matter Yield of Ryegrass Varieties at the Plant Breeding Unit, Tallassee, Alabama, 1982-83

Variety	Harvest date								Season total
	12/17	1/06	2/18	3/15	4/05	4/19	5/10	6/03	
	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.
Urbana	3,149	647	1,217	1,988	1,546	1,472	2,423	1,218	13,660 a
Marshall	3,590	532	864	1,664	1,791	1,681	2,361	1,161	13,645 a
Ninak	3,685	588	947	1,447	1,477	1,525	2,296	1,223	13,188 a
Pioneer 5M5F	3,502	493	1,247	1,979	1,150	1,170	2,415	1,048	13,003 ab
Shannon	3,204	610	1,148	1,686	1,547	1,395	2,142	1,202	12,935 ab
Penploid-4	4,420	596	1,193	1,444	1,085	1,121	1,976	1,022	12,856 ab
MOM LM 213	2,796	560	939	1,624	1,664	1,457	2,228	1,334	12,602 ab
MOM LMW 96	4,224	536	1,240	1,548	1,240	1,008	1,848	916	12,560 ab
Florida 80	3,334	470	1,158	1,917	1,092	1,115	2,097	850	12,033 bc
Vanderhave HW 73	3,892	574	1,087	1,539	1,146	1,030	1,826	924	12,018 bc
Vanderhave HI 71	2,840	508	712	1,291	1,369	1,487	2,199	1,067	11,472 c
Mean yield	3,512	556	1,068	1,648	1,373	1,315	2,165	1,088	12,725
C.V. (%)	13	10	14	15	15	14	9	15	5

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

Planted: September 17, 1982.

Soil: Cahaba fine sandy loam.

Table 3. Seasonal Dry Matter Yield of Ryegrass Varieties at the Sand Mountain Substation, Crossville, Alabama, 1982-83

Variety	Harvest Date						Season total
	4/11	4/29	5/12	5/24	6/08	6/24	
	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.
Urbana	625	1,045	1,102	1,087	1,393	1,267	6,520 a
Shannon	780	979	1,036	1,068	1,201	1,223	6,287 ab
MOM LMW 96	1,299	807	914	988	1,159	1,053	6,220 ab
Pioneer 5M5F	1,373	506	1,146	821	1,331	905	6,082 ab
Ninak	467	990	936	1,103	1,352	1,113	5,962 ab
Penploid-4	1,360	736	936	814	1,218	801	5,865 abc
Florida 80	1,237	615	1,385	548	1,492	407	5,684 bcd
Vanderhave HI 71	250	815	1,045	919	1,154	1,125	5,308 cd
Marshall	378	910	1,142	950	1,263	620	5,262 cd
Vanderhave HW 73	844	714	850	884	1,050	837	5,180 d
MOM LM 213	341	775	982	899	1,064	983	5,043 d
Mean yield	814	808	1,043	917	1,243	939	5,765
C.V. (%)	34	11	10	10	12	11	

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

Planted: September 15, 1982.

Soil: Hartsell fine sandy loam.

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

Variety	1981-82	1982-83	2-year average
	Lb./A.	Lb./A.	Lb./A.
Marshall	16,018	6,919	11,469
Penploid-4	12,656	7,110	9,883
Shannon	9,165	6,153	7,659
Florida 80	12,362	6,441	9,401

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

Variety	1981-82	1982-83	2-year average
	Lb./A.	Lb./A.	Lb./A.
Marshall	7,479	13,645	10,562
Penploid-4	5,971	12,856	9,414
Shannon	5,136	12,935	9,034
Florida 80	5,347	12,033	8,690

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

Variety	1981-82	1982-83	2-year average
	Lb./A.	Lb./A.	Lb./A.
Marshall	6,685	5,262	5,974
Penploid-4	5,603	5,865	5,734
Shannon	5,437	6,287	5,862
Florida 80	5,004	5,684	5,344

Table 7. Seasonal Dry Matter Production of Ryegrass Varieties at Plant Breeding Unit, Three-Year Average

Entry	Season				Total
	Autumn	Winter	Early spring	Late spring	
	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.
Marshall	1,840	3,890	4,700	2,730	13,160
Sunbelt	1,810	3,700	3,850	2,720	12,080
Meritra	1,640	3,200	4,040	2,510	11,380
Florida 80	1,570	3,850	3,560	1,730	10,700
Gulf	1,950	3,340	3,290	1,490	10,060

Table 8. Seasonal Dry Matter Production of Ryegrass Varieties at Gulf Coast Substation, Three-Year Average

Entry	Season				Total
	Autumn	Winter	Early spring	Late spring	
	Lb./A.	Lb./A.	Lb./A.	Lb./A.	Lb./A.
Marshall	640	3,050	4,520	2,450	10,660
Sunbelt	800	2,680	3,790	2,980	10,240
Florida 80	680	2,820	3,940	2,710	10,150
Meritra	570	2,760	3,990	2,620	9,940
Gulf	770	2,820	3,780	2,360	9,730

SOURCES OF RYEGRASS SEED

Varieties	Sources
Florida 80	Florida Agr. Exp. Sta., Gainesville, Florida
Marshall	Funk Seeds Int., Alexandria, Louisiana
MOM LMW 96 MOM LMW 215	Mommersteeg Int., Vlijmen, Netherlands
Shannon Pioneer 5M5F	Pioneer Hi-Bred, Inter., Tipton, Indiana
Penploid-4	Pennington Seed Inc., Madison, Georgia
Ninak Urbana Vanderhave HW 73 Vanderhave HI 71	D. J. Van Der Have Seeds, Rilland, Netherlands
Meritra Sunbelt	North American Plant Breeders, Ames, Iowa
Gulf	Moorer Seed Co., Prattville, Alabama