

Performance of



ryegrass varieties

in Alabama, 1980-81



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Performance of Ryegrass Varieties in Alabama, 1980-81

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Three ryegrass variety trials were conducted in Alabama during the winter of 1980-81. Ryegrass entries were planted at 20 pounds per acre in rows 6 inches apart, using plots 4 x 20 feet with four replicates. The tests were planted October 2 at the Plant Breeding Unit, October 8 at the Sand Mountain Substation, and November 3 at the Gulf Coast Substation. The late planting dates were a result of dry, hot weather in September which continued through October in southern Alabama. Tests were fertilized at planting with 50 pounds nitrogen per acre and adequate rates of phosphorus and potassium. After each harvest, 50 pounds nitrogen per acre were applied. Plots were clipped with a flail-type harvester wherever sufficient forage was available. A sample of green forage from each plot at each harvest was oven dried for determination of dry matter.

RESULTS

The extremely dry autumn reduced total forage yields. Winter and early spring rainfall was much lower than normal but adequate for plant growth. Foliar diseases were not a problem.

Forage yields at Sand Mountain Substation in northern Alabama were low, table 1. Since this is the first year for this test, with adverse autumn conditions, it is not possible to make any conclusions on ryegrass varietal performance in northern Alabama.

^{1/}Respectively, Professor and Research Associate, Department of Agronomy and Soils; Superintendent and Assistant Superintendent, Sand Mountain Substation; Superintendent and Assistant Superintendent, Plant Breeding Unit; and Superintendent, Associate Superintendent, and Assistant Superintendent, Gulf Coast Substation.

Yields were good at the Plant Breeding Unit in central Alabama although autumn production was reduced by drought, table 2. Marshall was the top producer, starting rapidly and maintaining production throughout the season until June. Marshall produced over 3,000 pounds per acre more than Gulf. Marshall outyielded Gulf and most other varieties at the December, April, and June harvests. Marshall, along with NAPB-SRA 21, Meritra, Sunbelt, NAPB 107, Shannon, and NK 78120 maintained leafy forage later in spring than other entries.

Yields at the Gulf Coast Substation were unusually low because of autumn drought and late planting, table 3. Marshall was the highest yielding variety in the test, producing substantially more forage than Gulf ryegrass at the March, April, and May harvests. Drought in May reduced late season production.

Selection of a ryegrass variety should be based on more than 1 year's results. Three-year averages for some varieties at the Plant Breeding Unit (central Alabama) and the Gulf Coast Substation (southwest Alabama) are shown in tables 4 and 5. Marshall, Florida Reseeding, and Sunbelt made more winter production than Meritra or Gulf at the Plant Breeding Unit. Early Spring production of Marshall was superior to all others at both locations.

Late spring production is important where high quality forage is desired for a long grazing season. Marshall, Sunbelt, and Meritra were superior to Florida Reseeding and Gulf in late spring.

Total forage yield of Marshall averaged over 3,000 pounds per acre more than Gulf ryegrass at the Plant Breeding Unit, table 4. At the Gulf Coast Substation, total yield of all five varieties was similar, table 5.

Table 1. Forage yield of ryegrass varieties at Sand Mountain Substation, Crossville, Alabama, winter 1980-81

Entry	Pounds oven-dry forage per acre					
	March 25	April 3	April 17	April 28	May 28	Total
Marshall (Miss. State)	445 bcd*	457 ab	1,061 ab	1,127 a	475 a	3,565 a
Gulf	424 cd	476 ab	1,094 a	825 bcd	567 a	3,386 ab
NAPB 107	653 abc	540 a	853 d	794 bcd	543 a	3,383 ab
Georgia Reseeding	881 a	446 ab	939 bcd	614 d	498 a	3,378 ab
Meritra	380 cd	512 ab	1,032 abc	852 bc	565 a	3,341 ab
Florida Reseeding	733 ab	460 ab	893 cd	683 cd	476 a	3,245 ab
Sunbelt	323 de	394 bc	1,094 a	820 bcd	560 a	3,191 ab
NAPB SRB-21	208 de	266 d	911 bcd	970 ab	470 a	2,825 bc
NK-78120	50 e	220 d	918 bcd	879 bc	512 a	2,589 c
Shannon	266 de	296 cd	831 d	685 cd	400 a	2,478 c
C.V. percent	44	20	10	16	23	12

*Means within a column with the same letter are not significantly different at 5 percent level.

Planted: Oct. 8, 1980

Soil: Hartsell's fine sandy loam

Table 2. Forage yield of ryegrass varieties at Plant Breeding Unit, Tallassee, Alabama, winter 1980-81

Entry	Pounds oven-dry forage per acre						
	Dec. 8	March 3	March 25	April 6	May 1	June 2	Total
Marshall.....	1036 a*	3,333 a	2,328 ab	1,860 a	3,318 a	1,903 a	13,778 a
NAPB-SRG21.....	568 b	3,262 a	2,014 cd	1,472 bc	2,978 abc	1,607 ab	11,901 b
Meritra.....	380 ba	2,901 a	2,290 ab	1,424 bcde	3,192 ab	1,168 c	11,355 b
Sunbelt.....	608 b	2,778 a	2,266 ab	1,449 bcd	2,734 abcd	1,265 bc	11,100 b
NAPB 107.....	418 bc	2,734 a	2,237 abc	1,504 bc	2,402 bcd	1,664 ab	10,959 b
Gulf.....	648 b	3,279 a	2,354 a	1,158 ef	3,124 ab	0 d	10,563 bc
Tx-0-R-80-4	435 bc	3,116 a	2,166 abcd	1,182 def	2,548 abcd	0 d	9,447 cd
Shannon.....	412 bc	1,772 b	1,971 d	1,527 b	2,077 d	1,624 ab	9,383 cde
TX-0-R-80-5	300 c	2,894 a	2,092 bcd	934 ef	2,429 bcd	0 d	8,649 de
Florida Reseeding ..	0 d	2,681 a	1,644 e	1,222 cde	2,267 cd	203 d	8,017 de
Georgia Reseeding ..	171 c	2,737 a	1,396 f	1,413 bcde	2,239 cd	0 d	7,956 e
NK 78120.....	0 d	742 c	1,737 e	1,849 a	2,058 d	1,471 bc	7,857 e
C. V. percent	32	18	7	12	19	28	9

*Means within a column having the same letter are not significantly different at 5 percent level.

Planted: October 2, 1980

Soil: Cahaba fine sandy loam

Table 3. Forage yield of ryegrass varieties at Gulf Coast Substation, Fairhope, Alabama, winter 1980-81

Pounds oven-dry forage per acre					
Entry	Feb. 20	March 10	April 2	May 8	Total
Marshall.....	1,935 bc*	2,576 a	2,264 a	3,255 ab	10,030 a
Shannon	1,931 bc	2,049 cd	1,912 bc	3,241 ab	9,133 b
NAPB 107	1,750 bcd	2,251 bc	2,033 ab	3,078 abc	9,112 b
TX-0-R-80-4	1,981 bc	2,373 ab	1,968 abc	2,754 cde	9,076 b
Meritra	1,729 cde	2,355 ab	1,883 bc	3,093 abc	9,060 b
Gulf.....	2,134 ab	2,126 bcd	1,931 bc	2,377 e	8,568 bc
Sunbelt	1,503 de	2,066 cd	1,949 abc	2,986 bcd	8,504 bc
NAPB SRG-21	1,605 cde	2,186 bcd	1,640 cd	3,071 abc	8,502 bc
Georgia Reseeding ·	2,387 a	1,928 d	1,671 cd	2,486 e	8,472 bc
NK 78120	573 f	1,937 d	2,151 ab	3,400 a	8,061 cd
TX-0-R-80-5	1,809 bcd	2,019 cd	1,497 d	2,633 de	7,958 cd
Florida Reseeding ·	1,352 e	2,036 cd	1,650 cd	2,461 e	7,499 d
C.V. percent	14	8	11	9	6

*Means within a column having the same letter are significantly different at 5 percent level.

Planted: Nov. 3, 1980

Soil: Marlboro fine sandy loam.

Table 4. Seasonal forage production of ryegrass varieties at Plant Breeding Unit, 3-year average

Entry	Pounds oven-dry forage per acre				
	<u>Autumn</u>	<u>Winter</u>	<u>Early spring</u>	<u>Late spring</u>	<u>Total</u>
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 Reseeding.....	1,570	3,850	3,560	1,730	10,700
Gulf.....	1,950	3,340	3,290	1,490	10,060

Table 5. Seasonal forage production of ryegrass varieties at Gulf Coast Substation, 3-year average

Entry	Pounds oven-dry forage per acre				
	<u>Autumn</u>	<u>Winter</u>	<u>Early spring</u>	<u>Late spring</u>	<u>Total</u>
Marshall.....	640	3,050	4,520	2,450	10,660
Sunbelt	800	2,680	3,790	2,980	10,240
Florida Reseeding.....	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

Seeds	Sources
Sunbelt, Meritra, NAPB 107, NAPB-SRG 21	North America Plant Breeders, Ames, Iowa
Florida Reseeding	Florida Agr. Exp. Sta., Gainesville, Florida
Georgia Reseeding	Georgia Agr. Exp. Sta., Experiment, Georgia
Marshall	Mississippi Agr. Exp. Sta., Mississippi, State, Mississippi
Gulf	Moorer Seed Co., Prattville, Alabama
NK 78120	Northrup King and Co., Minneapolis, Minnesota
Shannon	Mommersteeg Int., Vlijmen, Netherlands
TX-0-R-80-4, TX-0-R-80-5	Texas Agr. Exp. Sta., Overton, Texas

*Information contained herein is available to all persons regardless
of race, color, sex, or national origin.*