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Forage Crop Variety Trials, 1998

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Contents

Introduction

New, improved, and standard varieties of forage crops are evaluated in MAFES small-plot trials each year. Seed for the trials are obtained from commercial seed companies and state universities and tested at a number of locations in Mississippi. All entries from privately owned companies are tested on a fee basis. The Forage Crop Evaluation Committee may enter varieties of interest or proven varieties to be used as standards. This report contains data collected in 1997-98 on the performance of annual ryegrass, cool-season perennial grasses, bermudagrass, and clovers. A randomized complete block design with three to four replications, depending on location, was used. These data were analyzed within locations and within harvest dates. The number of harvests during the season varied by location because of different planting dates and growing conditions.

Performance of Ryegrass

Twenty-nine ryegrass varieties were planted at three locations. At Newton the test was harvested five times, and no variety produced significantly more than the average, 5,821 pounds of dry forage per acre. The highest yields were produced by two experimental lines, WVPB-F-11 (6,534 pounds per acre) and OFI-FL 95 (6,396 pounds per acre), compared to 5,733 pounds per acre for Gulf (Table 1). The varieties that have been in the test for 4 years are presented in Table 2. The highest yield was produced by Marshall (7,278 pounds per acre), followed by Surrey (7,218 pounds per acre), compared to 6,212 for Gulf. The test at Poplarville was harvested four times and had an average yield of 6,551 pounds per acre. The highest yield was produced by Big Daddy (7,934 pounds per acre), followed by Tetragold (7,507 pounds per acre), compared to 6,559 pounds per acre for Gulf (Table 3). At Raymond, the test was harvested four times and produced an average yield of 7,196 pounds per acre. The highest yields were produced by Southern Star (8,531 pounds per acre) and Tetrablend 444 Plus (8,232 pounds per acre), compared to 7,180 for Gulf (Table 4). The highest 4-year average was produced by TAM 90 with 8,452 pounds per acre, compared to 7,991 for Gulf (Table 5).

Performance of Cool-Season Perennial Grasses

A study was established in 1996 to evaluate selected varieties of four species of cool-season perennial grasses. Fescue is considered to be the best-adapted cool-season perennial grass for Mississippi. Earlier varieties of orchardgrass have not been persistent under Mississippi conditions. Little is known about tall oat grass. Prairie brome is being promoted as being a perennial, but under Mississippi environmental conditions, it will respond as a reseeding annual.

The test at Prairie was harvested four times, and highest yield was produced by Kentucky 31 fescue (Table 6). At Mississippi State, WVPB TF B-16 produced the highest yield (Table 7). At Newton, the test was harvested three times, and highest yields were produced by Georgia 5 and Bull tall fescue. In 1997, the brome grasses had the highest yields, but they did not survive (Table 8). At Poplarville, the test was harvested four times in 1997 and one time in 1998 before being abandoned due to loss of stand. The highest yield was produced by

Georgia 5 tall fescue (Table 9).

In a similar study at Mississippi State, planted in 1994, the fescues showed their persistence by producing more than other species, with highest yield being produced by Georgia 5 and KY 31(Table 10).

An experiment to evaluate 20 varieties of tall fescue was planted in 1980 at Mississippi State. In 1998, none of the varieties produced more than KY 31 endophyte infected. After 8 years, KY 31 has the highest average yield (Table 11).

Performance of Warm-Season Perennial Grasses

A study was initiated at the Prairie Research Unit to evaluate five species of native warm-season perennial grasses. Highest yields were produced by the switch grass varieties, with the variety Almo producing 6,355 pounds of forage per acre (Table 12.)

Performance of Clovers

White clovers were evaluated in two tests at Mississippi State. The highest yield of 16 varieties planted in fall of 1995 was produced by Will (Table 13). The highest yields produced by varieties planted in fall of 1996 were produced by Tillman 2 (Table 14).

Performance of Bermudagrass

Several of the bermudagrasses evaluated are experimental lines and may not be available for distribution at this time. Some of these are local ecotypes and others may be "sports" from established varieties. Murphy was selected in Leake County, Mississippi. Poplarville is a selection by Dr. Carl Hovermale at the South Mississippi Branch Experiment Station. Lott is a selection made by Harry Lott from Grenada County. These lines were included in the test because they are potential improvements over currently available varieties.

The other bermudagrasses are established varieties and are generally available. Coastal is the oldest of the improved bermudagrasses. It was developed by Dr. Glenn Burton at Tifton, Georgia. He also developed and released Tifton 44, Tifton 78, and Tifton 85. He developed Grazer, which was released jointly with Louisiana State University. Alicia was selected from an introduction growing in Edna, Texas. Lancaster was selected from a field of Coastal in Alcorn County, Mississippi. Russell -- named for Russell County, Alabama, where it was found in 1970 -- was released by Auburn University and Louisiana State University in 1995. Sumrall 007 was selected by Gerald Sumrall from Monticello in Lawrence County, Mississippi.

At Prairie, Coastal was the highest yielding of the 12 varieties evaluated, with a yield of 7,386 pounds per acres, compared to 6,328 for the average of all varieties (Table 15). At Raymond, the same varieties were compared to Pensacola and Tifton 9 bahiagrass. The highest yield was produced by Tifton 9 bahiagrass (9,515 pounds per acre), compared to 8,073 for the highest yielding bermudagrass, Alicia (Table 16). At Newton, the highest yield was produced by Tifton 78 WH (7,167 pounds per acre), compared to 4,817 for the average (Table 17). At Mississippi State in a comparison of eight varieties planted in 1993, the highest yield was produced by Coastal (Table 18). At Poplarville, Coastal had the highest yield in 1997 and also the highest 2-year average of the six varieties evaluated (Table 19). A test to evaluate six bermudagrass lines was established in June 1996 at the Animal Research Center at Mississippi State. The highest yield was produced by Sumrall 007 (Table 20). Another test to evaluate six varieties was planted in June 1997 at Mississippi State; the highest first-year yields were produced by Tifton 85, Lott, and Sumrall 007 (Table 21).

Performance of Bahiagrass

Tifton 9 Bahia was compared to Pensacola at three locations. At Mississippi State, although there was a trend for Tifton 9 to produce more dry matter than Pensacola, there were no significant differences in yield (Table 22). At Poplarville, bahiagrass was planted at 7 and 14 pounds per acre, but there were no significant differences due to seeding rate or variety in 1997. However, there was a significant increase in dry matter yield for Tifton 9 for the 3-year average (Table 23). At Raymond, the two bahiagrasses were included in a bermudagrass test. There was a trend for Tifton 9 to produce higher yields than Pensacola at Raymond, but the difference was not significant (Table 16).

Seed Sources

Ryegrass	
Big Daddy	Smith Seed Services
Blizzard	DLF Trifolium, Inc.
CAS-BSC1	Cascade International Seed Co.
CAS-MM6	Cascade International Seed Co.
DLF-1-AR	DLF Trifolium, Inc.
DLF-2-AR	DLF Trifolium, Inc.
FL4N	International Seed
FL/OR 1994LR	University of Florida and Oregon State University
FL X1997 (G) 4N	University of Florida
Gulf (certified)	Mid Valley Ag. Products
Hercules	Barenbrug
Hurricane	DLF Trifolium, Inc.
Jackson	Wax Seed Company
Marshall	Wax Seed Company
ME-94	Wax Seed Company
OFI-A94	Olsen-Fennell Seed, Inc.
OFI-FL 95	Olsen-Fennell Seed, Inc.
Passerel	Pennington Seed, Inc.
Ribeye	Barenbrug
RIO	Olsen-Fennell Seed, Inc.
Rustmaster	DLF Trifolium, Inc.
Southern Star	Forbes Seed and Grain, Inc.
Surrey	University of Florida
TAM 90	Texas A & M
Tetragold	Barenbrug
TXR95-5	Texas A & M
TXR95-6	Texas A & M
T-444 Plus	Smith Seed Services
WVPB-A-13	Willamette Valley Plant Breeders
WVPB-F-11	Willamette Valley Plant Breeders
WVPB-AR-93-101	Willamette Valley Plant Breeders
WVPB-R-3	Willamette Valley Plant Breeders

Tall Fescue

AU-Triumph	International Seeds, Inc.
Bull	DLF Trifolium
CAFA 401	Jenks Seed Connection
Cajun	Commercial Seed Trade
DeSoto (MSF 77-1)	Mississippi State University
Enforcer	Forbes Seed and Grain, Inc.
Fawn	Commercial Seed Trade
Forager	Commercial Seed Trade
GA-110-EF	University of Georgia
GA-196-EF	Univeristy of Georgia
GA-5-EI	University of Georgia
Jesup (EI)	University of Georgia
Jesup (EF)	Pennington Seed Company
Johnstone	Commercial Seed Trade
KY-31-EF	International Seeds, Inc.
KY-31-EI	International Seeds, Inc.
Martin	International Seeds, Inc.
OFI-TF-B1	Olsen-Fennell Seeds, Inc.
OFI-TF-B15	Olsen-Fennell Seeds, Inc.
Penngrazer	Pennington Enterprises, Inc.
PRO-B6	Pro Seeds Marketing
TF 9077	International Seeds, Inc.
TF 8872	International Seeds, Inc.
WVPB TF B-3	Willamette Valley Plant Breeders
WVPB TF B-5	Willamette Valley Plant Breeders
WVPB TF B-16	Willamette Valley Plant Breeders

Clover and other Legumes

Advantage (RS C3-27)	Whitetail Institute of North America
Brown Loam Syn. No. 2	USDA-ARS[1]
CW 190	Cal/West Seeds
CW 191	Cal/West Seeds
CW 983	Cal/West Seeds
DT population	USDA-ARS[1]
MSNR4 (nematode resistant)	USDA-ARS[1]
OZ population	USDA-ARS[1]
PP population	USDA-ARS[1]
SRVR (virus resistant)	USDA-ARS[1]

[1]These varieties were provided by the USDA-ARS Waste Management and Forage Research Unit.
All other white clovers were obtained from the USDA-ARS Regional Plant Introduction Station at Griffin, Georgia.

Orchardgrass

MoTol 85II	International Seed Inc.
9007238	Plant Material Center

Tall Oat Grass

564692	Plant Material Center

Prairie Brome

Stocker	Cascade International
Gala	Commercial Seed Trade
Muta	Commercial Seed Trade