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MISSISSIPPI
Corn for Silage

VARIETY TRIALS, 2002

Experiment Station
Vance H. Watson, Director

Mississippi Agricultural & Forestry Experiment Station
J. Charles Lee, Interim President • Mississippi State University • Vance H. Watson, Interim Vice President

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This report contains data generated as part of the Mississippi Agricultural and Forestry Experiment Station research program. Joint sponsorship by the organizations listed on page 6 is gratefully acknowledged.

Trade names of commercial products used in this report are included only for clarity and understanding. All available names (i.e., trade names, code numbers, chemical names, etc.) of varieties or products used in this research project are listed on page 6.

Mississippi Corn for Silage Variety Trials, 2002

Thomas R. Vaughan
Manager, Foundation Seed Stocks
Mississippi State University

Blair Boyd
Operation Coordinator
Brown Loam Experiment Station

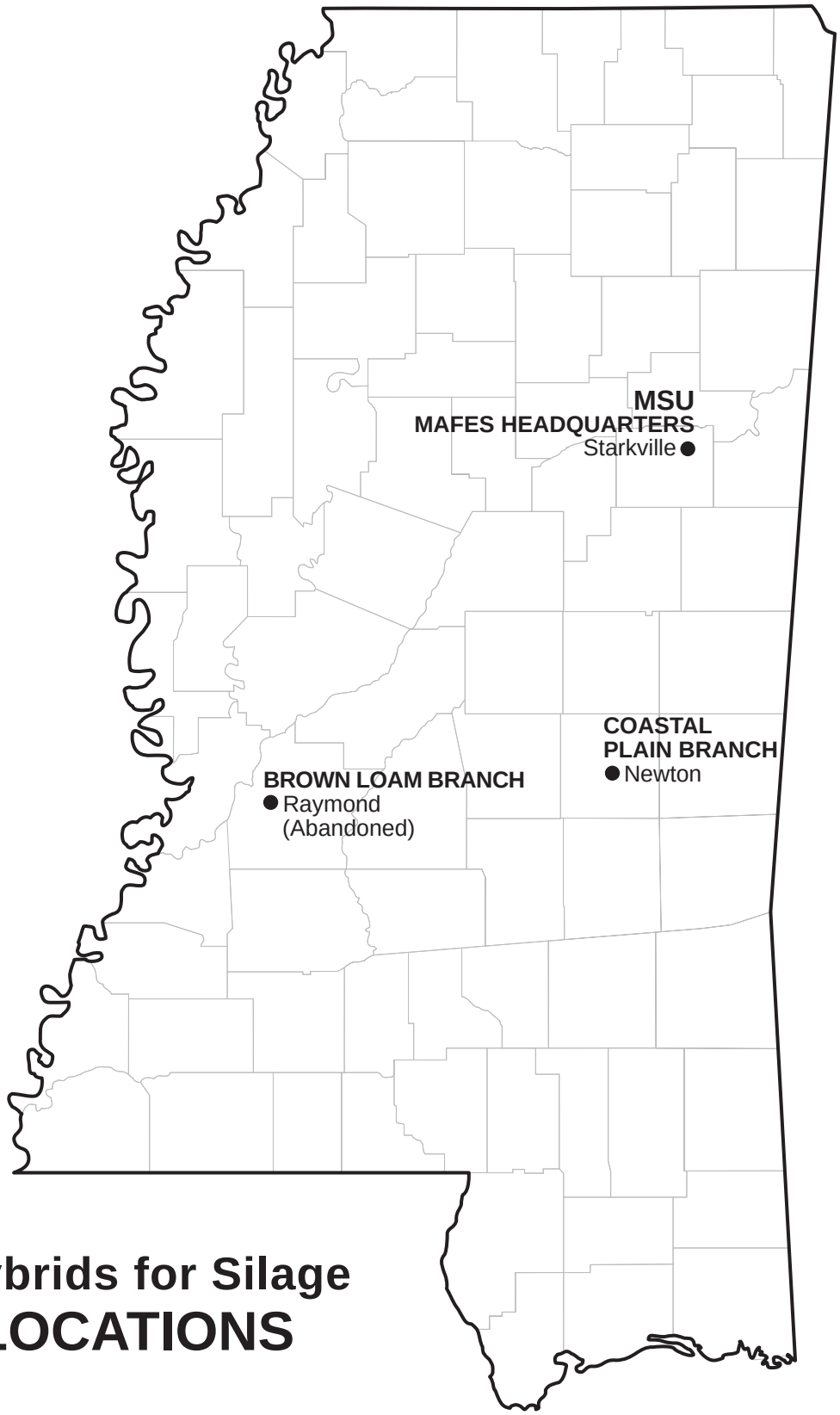
Blake Garrard
Farm Supervisor, MAFES Research Center
Mississippi State University

Billy B. Johnson
Senior Research Assistant
Coastal Plain Experiment Station

Clarence Watson
Statistician
Mississippi State University

Bernie White
Manager, Variety Evaluations
Mississippi State University

For more information, contact Vaughan at (662) 325-2390; e-mail, rvaughan@pss.msstate.edu. Recognition is given to Jessie Selvie and Jerry Nail, research technicians for the Variety Testing Program, for their assistance in packaging, planting, harvesting, and recording plot data. Statistical analyses and computing assistance were provided by Robert Goss, a student worker in the Experimental Statistics Unit. This publication was prepared by Jimmie Cooper, administrative secretary for MAFES Research Support Units. Information Bulletin 393 was published by the Office of Agricultural Communications, a unit of the Mississippi State University Division of Agriculture, Forestry, and Veterinary Medicine.



Corn Hybrids for Silage
TEST LOCATIONS

Mississippi Corn for Silage Variety Trials, 2002

Procedures

The 2002 corn hybrids trials for silage were conducted at three locations on Experiment Station land — Mississippi State University, Coastal Plain Branch Experiment Station in Newton, and Brown Loam Branch Experiment Station in Raymond (see map). Two experiments were planted at each location. However, the entire test at the Brown Loam Branch location was abandoned due to stand failure. In addition, the grain portion of the test at the Coastal Plain location was abandoned due to destruction of plots by racoons.

One experiment was designed to determine silage yield and various components of forage quality, while the other experiment was designed to determine grain yield of each hybrid. In the silage yield experiment, plots consisted of two 25-foot-long rows, which were spaced 38 inches apart at MSU and Raymond and 30 inches apart at Newton. The grain yield experiment was identical in row spacing to the silage tests, but row length was 16.75 feet. Experimental design was a randomized complete block with four replications at each location. Seeds of all entries were supplied by participating companies and packaged for planting at rates of 24,000 or 28,000 seeds per acre as specified. A four-row planter equipped with 31 cell cone units was used for planting. Established stands were not thinned. Nitrogen, phosphorus, potassium, and lime were applied according to soil test recommendations. Weeds were controlled by cultivation and/or herbicides currently registered for use on corn with strict adherence to all label instructions. Lorsban was donated by Dow Elanco and banded at planting for insect control.

Silage was harvested with a two-row silage harvester, and the biomass from the entire plot was blown into an automatic weigh wagon. Chopped samples were collected from each plot for dry matter and forage quality determinations. Samples were placed in a forced draft oven at 14°F until dry. Estimates for forage quality determined in these trials were crude protein, acid detergent fiber, estimated total digestible nutrients, net energy lactation, net energy gain, and net energy maintenance. Mineral analyses were made for calcium, phosphorus, magnesium, and potassium.

An Almaco SPC-20 plot combine was used to harvest the grain yield experiments. The harvested grain was weighed, the moisture content was determined, and grain yields were converted to bushels per acre at 15 percent moisture.

Mississippi State University, Starkville

Crop Summary

Because of an extended dry period (45 days) from May 19 through July 2, in which only 1.04 inches of rain fell, silage and grain yields were significantly reduced.

Soil type	Leeper silty clay loam
Soil pH	7.3
Soil fertility	P=H; K=L
Fertilizer added	Preplant – 0-0-60 @ 200 lb/A, (32%) N @ 50 lb/A
	Sidedress – (32%) N @ 150 lb/A
Herbicide application	Preemergence – Bicep II @ 2.5 qt/A
	Postemergence – Beacon @ .76 lb/A, ai
Planting date	April 19
Harvest date	(Silage) August 2
	(Grain) September 13

Rainfall Summary

	Inches
April	2.86
May	3.54
June	0.63
July	5.51
August	2.63
Total	15.17

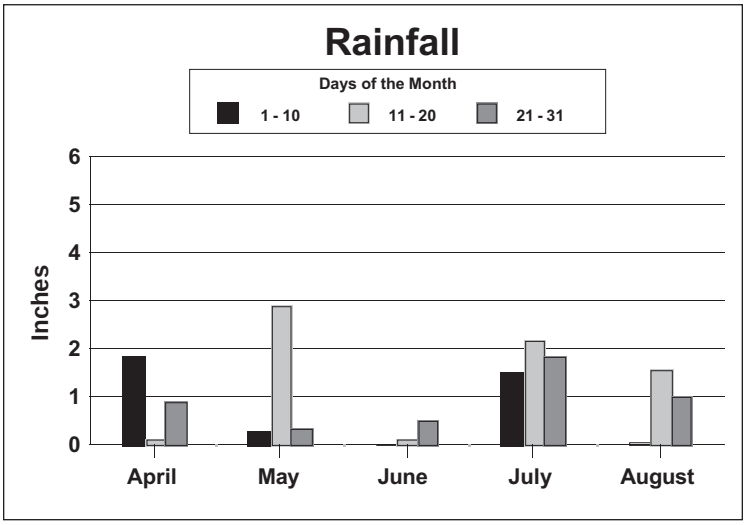


Table 1. Silage yield, grain yield, crude protein, and acid detergent fiber content of 10 corn hybrids grown at Mississippi State University, Starkville, Mississippi, 2002.

Hybrid	Brand	Silage yield[1]	Grain yield	Crude protein	Acid detergent fiber
		tons/A	*bu/A*	*pct*	*pct*
TXP268A-D (RR)	Monsanto	16.8	127.1	8.5	30.3
3055	Pioneer	16.1	150.6	8.3	28.8
DK697	DEKALB	15.7	133.9	9.0	26.2
DS740	Croplan Genetics	15.5	121.2	9.2	26.2
827RR	Croplan Genetics	15.4	119.5	8.3	29.4
DS822RR	Croplan Genetics	15.2	138.0	8.6	30.1
N91-R9	NK	14.6	140.3	9.2	29.0
1851W	Croplan Genetics	14.5	117.1	8.7	32.0
818RR	Croplan Genetics	13.7	130.8	8.9	30.8
DS738	Croplan Genetics	13.6	119.6	9.1	26.8
Overall Mean		15.1	129.8	8.8	29.0
LSD (.10)		1.9	14.2	.6	3.3
CV (%)		10.4	36	5.8	9.4
R^2 (%)		40.7	10.3	40.2	48.1

[1]At 35 percent dry matter.

Table 2. Forage quality estimates for 10 corn hybrids grown at Mississippi State University, Starkville, Mississippi, 2002.

Hybrid	Brand	NE lactation[1]	NE gain	NE maintenance	TDN estimate
		MC/cwt	*MC/cwt*	*MC/cwt*	*pct*
TXP268A-D (RR)	Monsanto	68.8	42.3	69.3	66.6
3055	Pioneer	70.0	43.7	70.8	67.7
DK697	DEKALB	72.1	46.1	73.5	69.5
DS740	Croplan Genetics	72.0	46.1	73.5	69.5
827RR	Croplan Genetics	69.5	43.1	70.2	67.2
DS822RR	Croplan Genetics	69.0	42.5	69.6	66.8
N91-R9	NK	69.8	43.5	70.6	67.5
1851W	Croplan Genetics	67.5	40.8	67.6	65.4
818RR	Croplan Genetics	68.5	41.9	68.8	66.3
DS738	Croplan Genetics	71.6	45.6	72.9	69.1
Overall Mean		69.9	43.5	70.7	67.6
LSD (.10)		2.6	3.0	3.3	2.3
CV (%)		3.1	5.7	3.9	2.8
R^2 (%)		47.7	47.9	48.0	48.1

[1]Analysis values are based on composite samples; NE = net energy, TDN = total digestible nutrients.

Table 3. Phosphorus, calcium, potassium, and magnesium content of 10 corn hybrids grown at Mississippi State University, Starkville, Mississippi, 2002.

Hybrid	Brand	Percent silage mineral content			
		P	CA	K	MG
TXP268A-D (RR)	Monsanto	0.22	0.29	0.65	0.22
3055	Pioneer	0.21	0.28	0.55	0.22
DK697	DEKALB	0.24	0.26	0.63	0.24
DS740	Croplan Genetics	0.23	0.31	0.69	0.25
827RR	Croplan Genetics	0.22	0.30	0.71	0.25
DS822RR	Croplan Genetics	0.21	0.30	0.65	0.21
N91-R9	NK	0.23	0.30	0.67	0.25
1851W	Croplan Genetics	0.22	0.30	0.67	0.26
818RR	Croplan Genetics	0.22	0.31	0.65	0.24
DS738	Croplan Genetics	0.23	0.27	0.63	0.22
Overall Mean		0.22	0.29	0.64	0.23
LSD (.10)		0.02	0.04	0.11	0.03
CV (%)		8.17	11.19	14.03	10.15
R^2 (%)		33.79	27.79	25.67	46.02

MAFES Coastal Plain Branch, Newton

Crop Summary

This was a drier-than-normal year for the Coastal Plain Station. The crop germinated well, emerged to a good stand, and grew normally even under stressed conditions. At silage harvest time in July, there was approximately a 9-inch precipitation deficit. However, temperatures throughout the growing season did average slightly cooler than normal. Silage yields were near average despite below-normal precipitation. Grain yields were not taken due to destruction by wildlife.

Soil type	**Prentiss very fine sandy loam**
Soil pH	**6.4**
Soil fertility	**P=H; K=H**
Fertilizer added	**Preplant – N @ 80 lb/A + P_2O_5 @ 80 lb/A + K_2O @ 80 lb/A**
	Sidedress – N @ 120 lb/A
Herbicide application	**Preemergence – Atrazine @ 2 qt/A + Frontier @ 24 oz/A**
Planting date	**March 28**
Harvest date	**(Silage) July 12**
	(Grain) No harvest

Rainfall Summary

	Inches
April	**2.65**
May	**2.52**
June	**2.17**
July	**4.04**
August	**2.21**
Total	**13.59**

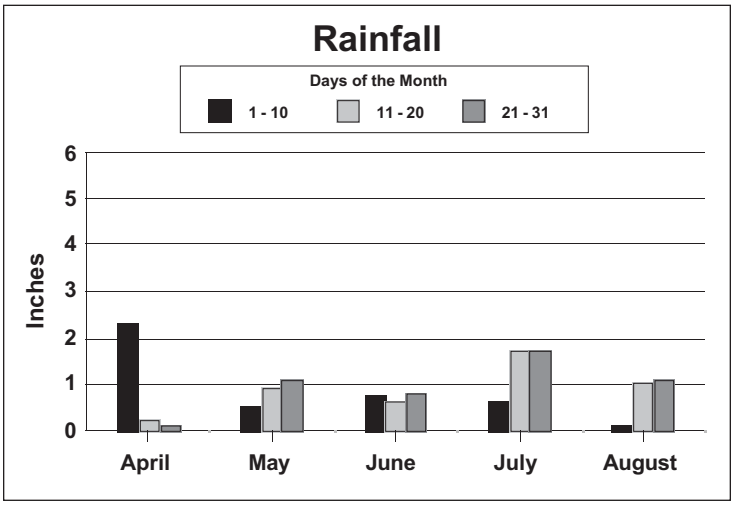


Table 4. Silage yield, grain yield, crude protein, and acid detergent fiber content of 10 corn hybrids grown at Newton, Mississippi, 2002.

Hybrid	Brand	Silage yield[1]	Grain yield[2]	Crude protein	Acid detergent fiber
		tons/A	*bu/A*	*pct*	*pct*
DS822RR	Croplan Genetics	15.8	—	8.7	28.6
DK697	DEKALB	15.5	—	8.3	30.8
TXP268A-D (RR)	Monsanto	15.3	—	8.5	31.2
N91-R9	NK	14.9	—	8.3	31.4
818RR	Croplan Genetics	14.8	—	8.9	26.9
DS740	Croplan Genetics	14.8	—	8.8	28.0
1851W	Croplan Genetics	14.5	—	8.6	31.7
827RR	Croplan Genetics	14.1	—	8.7	32.5
3055	Pioneer	13.3	—	9.0	32.9
DS738	Croplan Genetics	13.2	—	8.6	29.8
Overall Mean		14.6	—	8.6	30.4
LSD (.10)		2.4	—	.8	3.6
CV (%)		13.7	—	7.6	9.8
R^2 (%)		45.1	—	18.7	43.8

[1]At 35 percent dry matter.
[2]Did not harvest due to destruction by wildlife.

Table 5. Forage quality estimates for 10 corn hybrids grown at Newton, Mississippi, 2002.

Hybrid	Brand	NE lactation[1]	NE gain	NE maintenance	TDN estimate
		MC/cwt	*MC/cwt*	*MC/cwt*	*pct*
DS822RR	Croplan Genetics	70.2	43.9	71.1	67.9
DK697	DEKALB	68.4	41.9	68.8	66.3
TXP268A-D (RR)	Monsanto	68.1	41.5	68.4	66.0
N91-R9	NK	68.0	41.4	68.2	65.9
818RR	Croplan Genetics	71.5	45.4	72.8	69.0
DS740	Croplan Genetics	70.6	44.4	71.6	68.2
1851W	Croplan Genetics	67.8	41.1	67.9	65.7
827RR	Croplan Genetics	67.1	40.3	67.1	65.1
3055	Pioneer	66.8	40.0	66.7	64.8
DS738	Croplan Genetics	69.2	42.8	69.8	66.9
Overall Mean		68.8	42.3	69.2	66.6
LSD (.10)		2.8	3.3	3.6	2.5
CV (%)		3.4	6.4	4.4	3.1
R^2 (%)		43.8	43.7	43.7	43.8

[1]Analysis values are based on composite samples; NE = net energy, TDN = total digestible nutrients.

Table 6. Phosphorus, calcium, potassium, and magnesium content of 10 corn hybrids grown at Newton, Mississippi, 2002.

Hybrid	Brand	Percent silage mineral content			
		P	CA	K	MG
DS822RR	Croplan Genetics	0.23	0.27	0.95	0.22
DK697	DEKALB	0.21	0.27	0.85	0.21
TXP268A-D (RR)	Monsanto	0.23	0.28	0.89	0.22
N91-R9	NK	0.21	0.25	0.89	0.21
818RR	Croplan Genetics	0.24	0.24	0.80	0.19
DS740	Croplan Genetics	0.23	0.25	0.85	0.20
1851W	Croplan Genetics	0.22	0.25	0.92	0.21
827RR	Croplan Genetics	0.22	0.29	0.86	0.21
3055	Pioneer	0.21	0.30	0.92	0.22
DS738	Croplan Genetics	0.22	0.27	0.91	0.21
Overall Mean		0.22	0.27	0.88	0.21
LSD (.10)		0.03	0.03	0.08	0.03
CV (%)		9.75	8.84	7.73	13.59
R^2 (%)		24.55	50.08	40.26	24.54

Table 7. Characteristics of hybrids in the Mississippi Corn Silage Trials, 2002.

Company	Hybrid	Planting rate (X 1000)	Days to maturity	Grain texture[1]	MDMV resistance[2]	MCDV resistance[2]
Land O' Lakes/	DS738	24	114	—	—	—
Croplan Genetics	DS740	24	115	—	—	—
4990 N. County Rd. 583	818RR	24	117	—	—	—
Blytheville, AR 72315	DS822RR	24	119	—	—	—
	827RR	24	118	—	—	—
	1851W	24	116	—	—	—
Monsanto	DK697	24	119	M	—	—
3100 Sycamore Rd.	TXP268A-D (RR)	24	118	—	—	—
DeKalb, IL 60115						
Pioneer Hi-Bred Intl. Inc.	Pioneer 3055	—	—	—	—	—
6767 Old Madison Pike #110						
Huntsville, AL 35806						
Syngenta Seeds	N91-R9	28	124	—	—	—
100 Sangria Dr.						
Hattiesburg, MS 39402						

[1]M = Medium; H = Hard; and MH = Medium Hard.
[2]MDMV = Maize Dwarf Mosaic Virus; MCDV = Maize Chlorotic Dwarf Virus (corn stunt); S = Susceptible; R = Resistant; and MR = Moderately Resistant.

Mississippi State University

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