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MISSISSIPPI
Corn for Silage

VARIETY TRIALS, 2001

Experiment Station
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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, 2001

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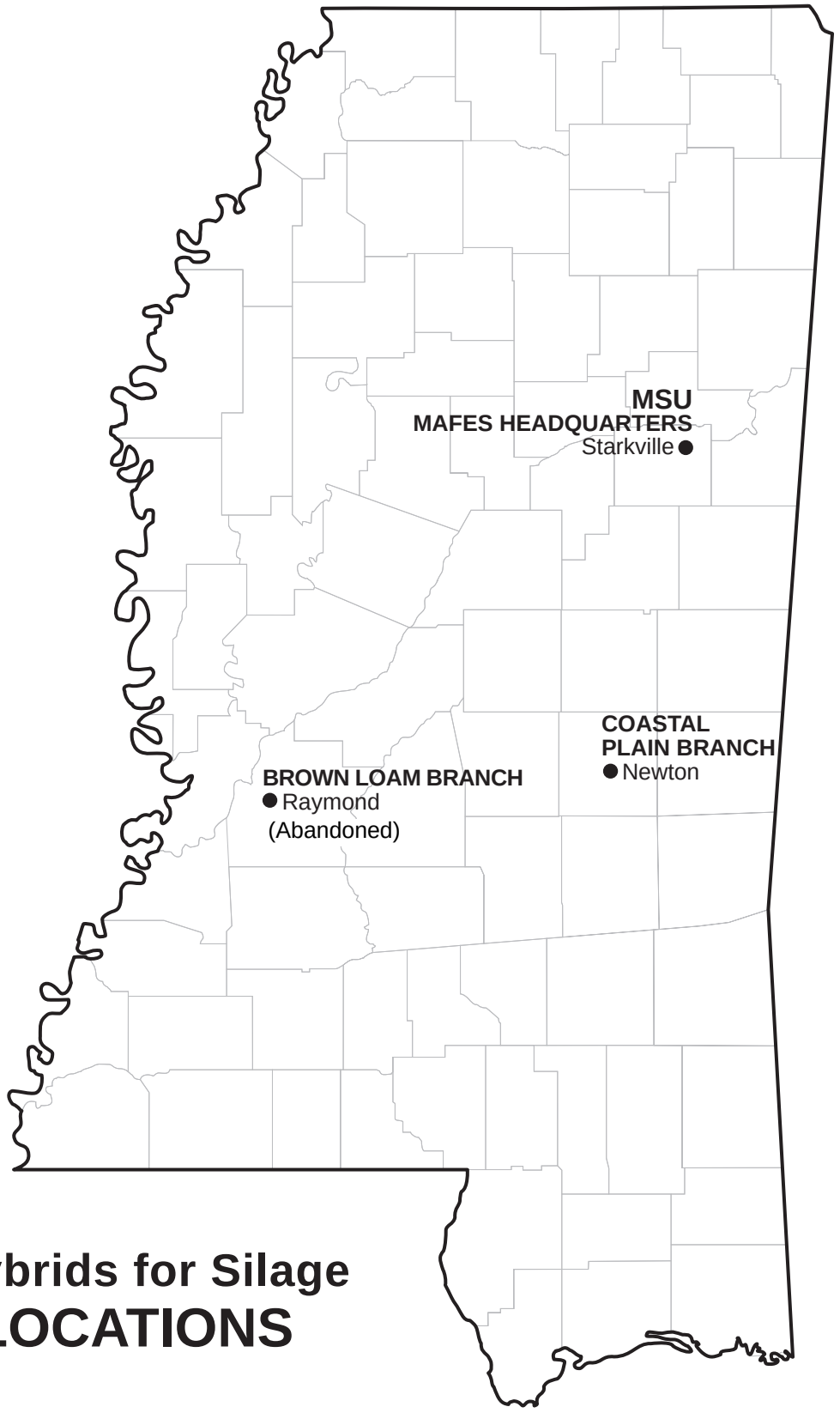

Corn Hybrids for Silage
TEST LOCATIONS

Mississippi Corn for Silage Variety Trials, 2001

Procedures

The 2001 corn hybrids trials for silage were conducted at three locations on Experiment Station land — Mississippi State University, Coastal Plain Branch Experiment Station at Newton, and Brown Loam Branch Experiment Station at Raymond (see the map on the previous page). Two experiments were planted at each location. However, due to an extended period of untimely and continuous rainfall immediately prior to harvest, the test at the Brown Loam Branch location was abandoned.

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 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 140°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

Growing conditions were generally good this year with only minor periods of drought stress and high temperatures.

Soil type	**Leeper silty clay loam**
Soil pH	**7.1**
Soil fertility	**P = H+; K = L**
Fertilizer added	**Fall – K @ 120 lb/A**
	Preplant – (32%) N @ 50 lb/A
	Sidedress – (32%) N @ 150 lb/A
Herbicide application	**Preemergence – Bicep II Magnum @ 2.5 qt/A**
	Postemergence – Beacon @ .76 oz/A
Previous crop	**Corn**
Planting date	**April 9**
Harvest date	**(Silage) July 23**
	(Grain) September 14

Rainfall Summary

	Inches
April	**2.15**
May	**2.88**
June	**5.37**
July	**2.32**
August	**7.35**
Total	**20.07**

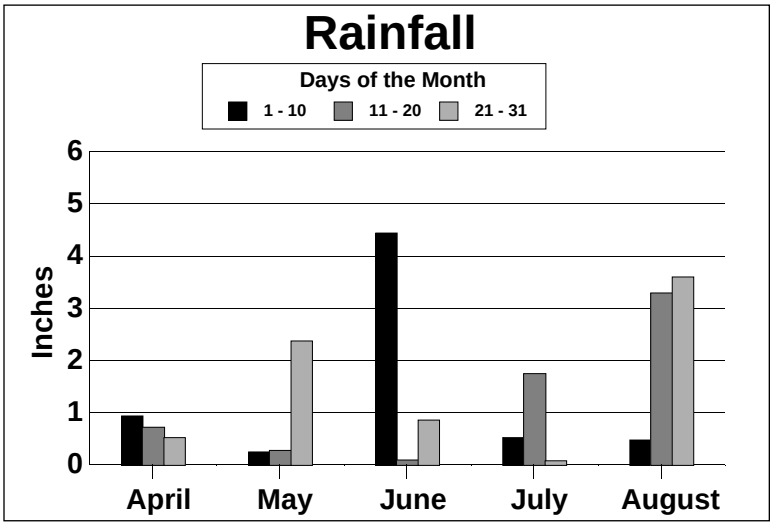

Table 1. Silage yield, grain yield, crude protein, and acid detergent fiber content of eight corn hybrids grown at Mississippi State University, Starkville, Mississippi, 2001.

Hybrid	Brand	Silage yield[1]	Grain yield	Crude protein	Acid detergent fiber
		tons/A	*bu/A*	*pct*	*pct*
30F33	Pioneer	21.6	189.2	9.3	30.5
N91-R9	Syngenta	21.1	250.8	9.2	26.8
31B13	Pioneer	19.6	245.3	8.4	25.1
5515	Dyna-Gro	18.9	202.5	8.9	25.8
DK697	DEKALB	17.8	226.4	8.3	27.8
SS1060	Southern States	17.5	172.0	9.1	29.4
SS859CL	Southern States	15.3	204.4	8.4	26.7
33J56	Pioneer	14.9	209.0	9.4	26.5
Overall Mean		18.3	212.4	8.9	27.3
LSD (.10)		4.1	32.0	1.0	3.4
CV (%)		18.6	12.4	9.5	10.3
R^2 (%)		43.7	60.2	33.3	44.1

[1]At 35 percent dry matter.

Table 2. Forage quality estimates for eight corn hybrids grown at Mississippi State University, Starkville, Mississippi, 2001.[1]

Hybrid	Brand	NE lactation	NE gain	NE maintenance	TDN estimate
		MC/cwt	*MC/cwt*	*MC/cwt*	*pct*
30F33	Pioneer	68.7	42.1	69.1	66.5
N91-R9	Syngenta	72.9	45.5	72.9	69.1
31B13	Pioneer	72.9	47.0	74.6	70.3
5515	Dyna-Gro	72.4	46.4	73.9	69.8
DK697	DEKALB	70.7	44.6	71.8	68.4
SS1060	Southern States	69.4	43.0	70.1	67.2
SS859CL	Southern States	71.6	45.5	72.9	69.1
33J56	Pioneer	71.8	45.8	73.2	69.3
Overall Mean		71.3	45.0	72.3	68.7
LSD (.10)		3.0	3.1	3.5	2.4
CV (%)		3.4	5.6	3.9	2.9
R^2 (%)		45.9	45.0	45.0	45.0

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

Table 3. Phosphorus, calcium, potassium, and magnesium content of eight corn hybrids grown at Mississippi State University, Starkville, Mississippi, 2001.

Hybrid	Brand	Percent silage mineral content			
		P	CA	K	MG
30F33	Pioneer	.24	.33	1.14	.25
N91-R9	Syngenta	.26	.27	1.07	.23
31B13	Pioneer	.25	.26	1.04	.22
5515	Dyna-Gro	.25	.26	1.03	.21
DK697	DEKALB	.23	.25	.98	.22
SS1060	Southern States	.25	.28	1.08	.23
SS859CL	Southern States	.24	.26	1.03	.22
33J56	Pioneer	.25	.30	1.11	.23
Overall Mean		.24	.28	1.06	.22
LSD (.10)		.02	.05	.22	.03
CV (%)		7.83	15.95	16.92	11.36
R^2 (%)		29.84	39.88	14.92	29.92

MAFES Coastal Plain Branch, Newton

Crop Summary

Temperatures were within the normal range when the test was planted. Adequate soil moisture and soil temperature permitted a timely planting and crop emergence. The crop progressed normally until conditions turned dry from mid-April through late May, when rains came as needed. The crop looked good and was above average up until harvest time. At crop maturity, frequent rains and wind for a 2- to 3-week period delayed grain harvest, causing significant yield losses in some plots. Deer were a major problem and caused lodging in some plots.

Soil type	Prentiss very fine sandy loam
Soil pH	6.7
Soil fertility	P = H; K = H
Fertilizer added	Preplant – 34-0-0 @ 150 lb/A + 0-0-60 @ 100 lb/A Sidedress – N-Sol (32%) @ 150 lb/A
Herbicide application	Atrazine @ 2 qt/A + Frontier @ 24 oz/A
Previous crop	Corn
Planting date	April 3
Harvest date	(Silage) July 24 (Grain) September 10

Rainfall Summary

	Inches
April	4.57
May	3.78
June	5.55
July	2.76
August	5.98
September	4.68
Total	27.32

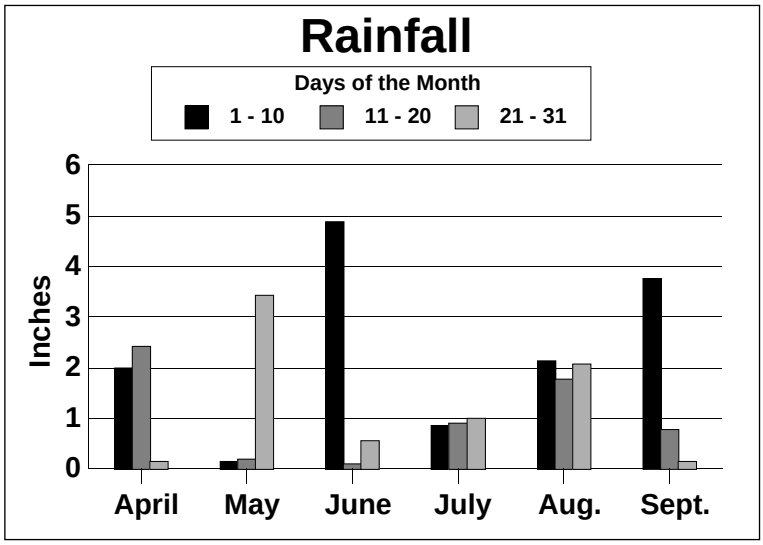

Table 4. Silage yield, grain yield, crude protein, and acid detergent fiber content of eight corn hybrids grown at Newton, Mississippi, 2001.

Hybrid	Brand	Silage yield[1]	Grain yield	Crude protein	Acid detergent fiber
		tons/A	*bu/A*	*pct*	*pct*
33J56	Pioneer	18.2	91.3	8.6	23.8
31B13	Pioneer	17.2	74.3	8.3	22.9
N91-R9	Syngenta	17.1	91.4	8.3	29.1
DK697	DEKALB	16.9	88.7	8.1	27.1
SS1060	Southern States	16.8	76.5	8.9	29.2
30F33	Pioneer	16.1	78.3	9.3	29.2
5515	Dyna-Gro	15.9	109.1	7.9	28.9
SS859CL	Southern States	14.1	62.6	7.7	24.8
Overall Mean		16.5	84.0	8.4	26.9
LSD (.10)		1.9	38.9	.5	4.7
CV (%)		9.5	38.1	5.0	14.3
R^2 (%)		46.9	34.˘	72.5	41.4

[1]At 35 percent dry matter.

Table 5. Forage quality estimates for eight corn hybrids grown at Newton, Mississippi, 2001.[1]

Hybrid	Brand	NE lactation	NE gain	NE maintenance	TDN estimate
		MC/cwt	*MC/cwt*	*MC/cwt*	*pct*
33J56	Pioneer	73.9	48.2	75.9	71.2
31B13	Pioneer	74.6	49.0	76.8	71.8
N91-R9	Syngenta	69.8	43.5	70.6	67.5
DK697	DEKALB	71.3	45.2	72.5	68.9
SS1060	Southern States	69.7	43.3	70.4	67.4
30F33	Pioneer	69.7	43.4	70.5	67.4
5515	Dyna-Gro	70.0	43.7	70.8	67.6
SS859CL	Southern States	73.2	47.3	74.9	70.5
Overall Mean		71.5	45.4	72.8	69.0
LSD (.10)		3.6	4.2	4.7	3.3
CV (%)		4.2	7.6	5.3	3.9
R^2 (%)		41.4	41.1	41.2	41.4

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

Table 6. Phosphorus, calcium, potassium, and magnesium content of eight corn hybrids grown at Newton, Mississippi, 2001.

Hybrid	Brand	Percent silage mineral content			
		P	CA	K	MG
33J56	Pioneer	.25	.23	1.15	.20
31B13	Pioneer	.24	.24	1.07	.20
N91-R9	Syngenta	.23	.27	1.11	.22
DK697	DEKALB	.22	.27	1.05	.22
SS1060	Southern States	.24	.30	1.19	.23
30F33	Pioneer	.25	.33	1.24	.25
5515	Dyna-Gro	.23	.25	1.09	.21
SS859CL	Southern States	.23	.23	.96	.20
Overall Mean		.23	.26	1.11	.21
LSD (.10)		.02	.03	.08	.02
CV (%)		7.70	10.80	5.70	7.59
R^2 (%)		40.99	65.55	76.75	62.54

Table 7. Characteristics of hybrids in the Mississippi Corn Silage Trials, 2001.

Company	Hybrid	Planting rate (X 1000)	Days to maturity	Grain texture[1]	MDIV resistance[2]	MCDV resistance[2]
Monsanto 3100 Sycamore Rd. Dekalb, IL 60115 815-758-9323	DK697	24	119	M	—	—
Pioneer Hi-Bred Intl. 6767 Old Madison Pike Suite 110 Huntsville, AL 35806 256-971-0760	33J56 31B13 30F33	28 24 24	113 119 132	M M —	MR MS —	MR MS —
Southern States Coop P.O. Box 26234 6606 West Broad St. Richmond, VA 23260 804-281-1253	SS 859CL SS 1060	28 24	118 130	M —	MR —	MR —
Syngenta Seeds 100 Sangria Drive Hattiesburg, MS 39402 601-264-2878	N91-R9	28	126	—	—	—
UAP Mid-South 57 Germantown Court Suite 200 Cordova, TN 38018 901-752-4223	5515	32	117	H	MR	MR

[1]M = Medium; H = Hard; and MH = Medium Hard.
[2]MDIV = 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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