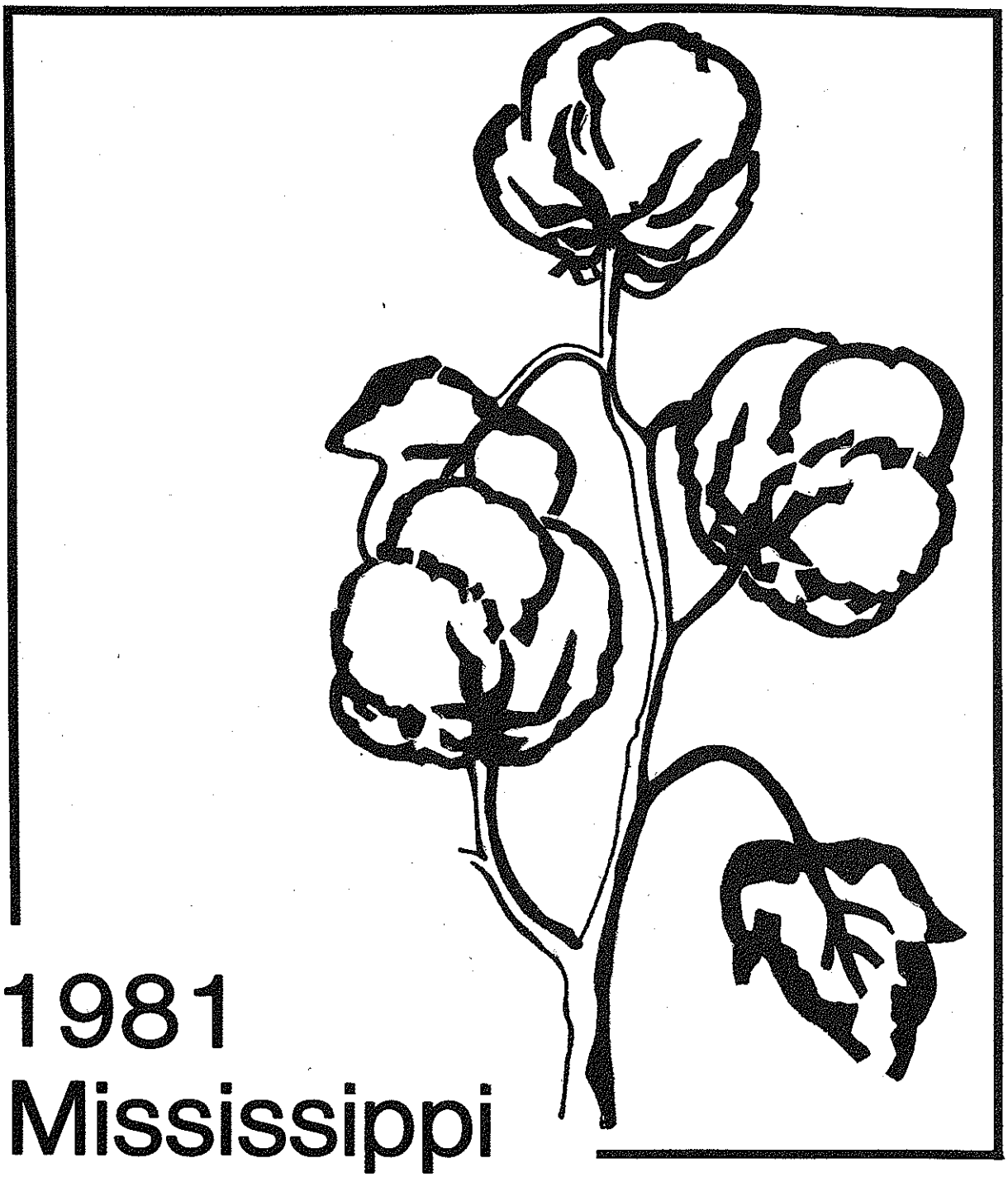
Bulletin 901 **February 1982**



1981 Mississippi Cotton Variety Tests

MAFES MISSISSIPPI AGRICULTURAL & FORESTRY EXPERIMENT STATION
R. RODNEY FOIL, DIRECTOR MISSISSIPPI STATE, MS 39762

Mississippi State University
James D. McComas, President Louis N. Wise, Vice President

1981 Mississippi Cotton Variety Tests

R. R. Bridge, plant breeder, MAFES Delta Branch
B. L. Arnold, superintendent, MAFES North Mississippi Branch
F. M. Bourland, assistant agronomist, Department of Agronomy, Mississippi State University
and
J. F. Chism, assistant agronomist, MAFES Delta Branch

Mississippi Cotton Variety Tests

The Mississippi cotton variety testing program is a continuing evaluation of cotton varieties available from private companies and state agricultural experiment stations. The testing program is conducted to determine the relative performance of available varieties in different environments and distribute the information to producers throughout the state. Tests are conducted at various locations but do not encompass all environments that may be present. However, individual producers may use the results as a guide in selecting the variety or varieties best adapted to their growing conditions.

Several good varieties are well adapted to Mississippi growing conditions, but no single variety is superior for all characteristics because each variety has certain advantages and limitations. A study of the general characteristics along with earliness, storm resistance, disease resistance, grade, fiber quality and seed quality should help in varietal selection.

Yield and earliness of a given variety can be influenced by seed quality, planting date, cultural practices, fertilization, irrigation, weather and weed and insect control. Seed quality is more important with early planting dates where there is a greater probability of cold weather and seedling disease. High seed viability and good seedling vigor help to insure uniform and adequate stands under adverse conditions. Most varieties have about the same number of seed per pound, but a few have very small seed that may require different planter plates to insure the proper plant population.

Maturity becomes more important as one goes from the southern to the northern part of the state, particularily when planting is delayed. Reaction to diseases and insects merits additional consideration because several prevalent diseases can reduce yield of susceptible varieties.

The 1981 cotton variety tests were conducted in four Delta environments (Sumner, Tunica and two sites at Stoneville) and two hill environments (Holly Springs and Mississippi State University).

Each entry was randomized and replicated six times. Yield determinations were based on the weight of cotton harvested from two-row plots. Determinations of lint percentage, boll size, seed index and fiber properties were made from hand-picked samples. Fiber property evaluations were made in the Cotton Fiber Laboratory at Stoneville.

The same 15 varieties were evaluated in all Delta environments and 14 of the 15 were evaluated in the hill environments. Deltapine NSL, Deltapine 62, McNair 220 and HAS 2344 were evaluated for the first time.

The seed planted at each location in 1981 were provided by commercial seed companies, and numbers of seed per pound of acid-delinted seed of the 15 varieties ranged from 4,460 to 5,483. Therefore, planting seed of each variety at the same lbs/acre rate provided the potential for substantial differences in per acre plant populations of the varieties entered.

Results

Delta, 1981

The test at Stoneville on a Bosket very fine sandy loam was planted April 21. Soil moisture was limited, but good stands were established. Plant populations ranged from 44,483 to 59,778 plants per acre and averaged 56,128 plants per acre, and Coker 3131 was the only entry with a plant population less than 50,000 per acre. This test was irrigated on July 16 and was harvested once on September 21. The test matured very early and lint yields ranged from 647 to 886 lbs/acre (Table 1). Fibers were shorter than usual, and micronaire values were relatively low.

The Tunica test was planted April 28 on a Dundee sandy loam and good stands were obtained. The test was harvested on October 12 and lint yields ranged from 650 to 856 lbs/acre (Table 2). Varieties at this location produced cotton with short fiber and high micronaire values. Micronaire values ranged from 4.7 to 5.6, but only the two lowest-producing varieties had micronaire values

below 5.0. Fiber strength values at this location were lower than usual.

The test at Sumner on a Dubbs sandy loam was planted April 22 and was harvested September 28. Lint yields were higher than at other test locations and ranged from 986 to 1135 lbs/acre (Table 3). The longest and strongest fiber was produced at this location. Micronaire values were relatively high and ranged from 4.8 to 5.4.

The test at Stoneville on a mixed soil was planted April 15. The test was irrigated July 27 and harvested September 24. Lint yields ranged from 508 to 670 lbs/acre (Table 4). Fiber length values were lower than usual and ranged from 1.02 to 1.14. Micronaire values were relatively high for some varieties and ranged from 4.6 to 5.4.

Table 1. Results of 1981 Cotton Variety Test on a Bosket very fine sandy loam soil at Stoneville.

Variety	Lint Per acre	Open bolls per acre Aug.19, 1981	Lint percent	Seed index	Boll size grams	FIBER PROPERTIES Length 2.5%	Length 50%	Strength g/tex	Elongation	Micronaire	Plant height (in.)
DES 422	886	63,969	38.6	10.0	4.85	1.06	.49	18.82	7.0	4.5	39.7
DES 56	882	69,329	36.5	10.4	4.67	1.07	.48	18.36	7.6	4.5	40.3
Stoneville 825	825	39,161	36.9	10.0	4.68	1.09	.50	16.91	6.9	4.4	43.6
Stoneville 213	812	36,326	37.4	10.0	4.86	1.08	.48	18.52	7.9	4.5	41.2
Deltapine NSL	800	44,078	37.5	10.1	5.00	1.05	.49	17.75	8.8	4.6	43.1
McNair 235	796	61,134	36.5	10.5	4.84	1.08	.48	18.51	7.0	4.3	40.5
Deltapine 55	785	41,863	38.0	9.6	4.98	1.08	.49	18.97	7.8	4.1	41.4
McNair 220	785	77,348	35.4	11.1	5.09	1.06	.49	19.36	6.6	4.3	39.1
Deltapine 41	781	41,509	40.1	9.3	4.89	1.07	.49	19.51	7.2	4.3	40.6
Stoneville 506	768	35,396	36.1	10.7	4.90	1.08	.47	19.51	7.7	4.7	39.8
Deltapine 62	757	29,238	36.7	11.2	5.43	1.13	.52	19.51	7.7	4.4	40.4
Coker 315	749	44,920	35.8	11.4	5.44	1.12	.51	19.82	7.5	4.3	40.0
HAS 2344	725	70,171	36.5	10.3	4.62	1.07	.48	18.75	7.7	4.4	40.6
Coker 3131	707	49,439	36.7	11.3	5.29	1.08	.49	18.44	7.3	4.3	41.9
Coker 310	647	39,870	35.2	11.6	5.68	1.10	.50	19.59	6.9	4.3	41.2
LSD .05	64										
C.V.	7.0										

Planted: April 21, 1981
Harvested: September 21, 1981
Irrigated: July 16, 1981

Table 2. Results of 1981 Cotton Variety Test on a Dundee sandy loam soil at Tunica.

	LINT PER ACRE Total	Lint percent	Seed index	Boll size grams	FIBER PROPERTIES Length 2.5%	Length 50%	Strength g/tex	Elongation	Micronaire
Stoneville 213	856	39.7	10.1	5.10	1.01	.45	18.57	7.7	5.6
McNair 235	826	39.9	9.7	4.92	1.04	.50	19.50	6.8	5.5
DES 422	797	40.0	10.0	4.83	1.04	.49	17.71	7.3	5.1
McNair 220	797	38.7	9.9	4.94	1.02	.48	19.11	6.8	5.3
Stoneville 825	795	38.7	10.0	5.02	1.04	.47	17.40	6.7	5.5
Coker 315	789	38.8	10.5	5.71	1.07	.50	19.27	7.8	5.1
DES 56	748	38.6	9.7	4.75	1.06	.51	18.88	7.9	5.0
Deltapine 41	748	42.4	8.2	4.61	1.05	.50	18.57	6.5	5.2
Deltapine NSL	734	39.7	9.5	5.00	1.01	.48	18.33	9.3	5.5
Deltapine 55	725	40.6	9.3	4.77	1.07	.49	17.40	7.1	5.1
Deltapine 62	724	39.6	10.2	5.12	1.06	.49	19.74	7.0	5.4
Coker 3131	723	40.7	10.8	5.31	1.03	.49	17.86	7.6	5.1
Stoneville 506	710	38.9	9.4	4.60	1.06	.48	19.58	8.9	5.0
HAS 2344	651	38.5	9.4	4.56	1.03	.49	18.25	8.9	4.9
Coker 310	650	38.4	10.5	5.99	1.08	.51	20.12	6.6	4.7
LSD .05	94								
C.V.	10.9								

Planted: April 28, 1981
Harvested: October 12, 1981.

Delta Averages

Average lint yield of the 15 cotton varieties grown in the four Delta environments in 1981 ranged from 712 to 862 lbs/acre (Table 5). Average fiber length was shorter than usual, and micronaire values ranged from 4.6 to 5.2.

Average lint yield of the ten varieties that have been tested in 12 Delta environments over a three-year period (1979-81) ranged from 731 to 879 lbs/acre (Table 6). The wide range in characteristics such as yield, maturity, seed size, seed vigor, storm resistance, disease resistance, fiber length, fiber strength and micronaire values permit selection of a variety that will maximize production and profit. Fiber length ranged from 1.10 to 1.16, and micronaire values ranged from 4.5 to 5.0. Seed index (weight of 100 seed) ranged from 9.1 to 11.4 and should be considered in choosing the correct planting plates.

Hill Area, 1981

The test on a Grenada silt loam at Holly Springs was planted May 11 and was harvested twice. Maturity at first harvest on October 12 ranged from 36 to 65% (Table 7). Lint yields ranged from 675 to 954 lbs/acre. Micronaire values were below 5.0 for all varieties except Stoneville 213 and Stoneville 825.

The average lint yield of 11 varieties grown at Holly Springs over a two-year period (1980-81) ranged from 705 to 907 lbs/acre, and maturity at first harvest ranged from 60 to 70% (Table 8). The four earliest-maturing varieties also were the highest yielding. Micronaire values were relatively high, ranging from 4.8 to 5.4.

The Mississippi State test on a Marietta sandy loam was planted April 28 and harvested October 7. Lint yields ranged from 913 to 1148 lbs/acre (Table 9). Micronaire values were relatively low ranging from 4.3 to 5.2, with only three varieties having a micronaire value of 5.0 or above.

The average lint yield of 11 varieties grown at Mississippi State over a two-year period (1980-81) ranged from 1024 to 1144 lbs/acre (Table 10). Micronaire values ranged from 4.7 to 5.4.

Table 3. Results of 1981 Cotton Variety Test on a Dubbs sandy loam soil at Sumner.

	LINT PER ACRE			Boll	FIBER PROPERTIES				
		Lint	Seed	size	Length		Strength	Elonga-	Micro-
	Total	percent	index	grams	2.5%	50%	g/tex	tion	naire
DES 422	1135	38.1	11.3	4.96	1.12	.53	21.84	8.6	5.1
Coker 3131	1124	38.6	12.5	5.43	1.10	.51	18.88	7.6	5.1
McNair 235	1121	37.6	12.1	4.62	1.12	.53	19.20	7.7	5.3
McNair 220	1109	36.6	12.2	4.81	1.13	.55	21.76	6.9	5.3
Deltapine 41	1109	40.3	9.5	4.87	1.10	.50	19.44	7.6	5.0
DES 56	1098	37.2	10.9	5.08	1.12	.53	22.00	8.6	5.0
Coker 315	1098	37.2	12.2	5.37	1.16	.55	21.28	6.3	5.0
Stoneville 825	1094	37.6	11.6	5.15	1.09	.50	18.96	7.1	5.4
Deltapine 62	1091	37.3	11.9	5.78	1.17	.55	20.88	8.5	5.4
Stoneville 213	1088	37.5	11.6	5.27	1.09	.51	19.68	7.9	5.4
Deltapine NSL	1021	38.6	10.8	5.18	1.07	.52	20.48	9.7	5.4
HAS 2344	1014	37.0	10.8	4.66	1.09	.49	19.36	8.5	4.8
Stoneville 506	1003	36.2	11.9	5.20	1.13	.53	19.92	7.9	5.2
Coker 310	993	36.6	12.0	5.25	1.18	.56	22.88	7.0	4.9
Deltapine 55	986	38.3	10.8	4.99	1.10	.50	19.52	8.5	5.0
LSD .05	100								
C.V.	8.0								

Planted: April 22, 1981
Harvested: September 28, 1981

Table 4. Results of 1981 Cotton Variety Test on a mixed soil at Stoneville.

	LINT PER ACRE			Boll	FIBER PROPERTIES				
		Lint	Seed	size	Length		Strength	Elonga-	Micro-
	Total	percent	index	grams	2.5%	50%	g/tex	tion	naire
Deltapine 55	670	40.9	9.6	4.50	1.06	.48	20.51	9.4	5.1
Stoneville 506	642	37.3	11.0	4.80	1.11	.51	19.46	9.7	5.2
DES 422	631	39.1	9.9	4.17	1.07	.49	20.16	7.5	4.8
Stoneville 825	611	39.5	10.3	4.35	1.06	.49	19.32	7.1	5.4
DES 56	607	37.5	10.7	4.43	1.08	.48	21.64	8.4	5.0
Stoneville 213	601	37.7	10.2	4.58	1.10	.50	20.65	9.6	4.9
Deltapine 41	594	41.7	8.8	4.24	1.06	.46	21.01	7.8	5.2
McNair 235	588	37.5	10.5	4.04	1.09	.51	22.14	7.8	4.8
Deltapine NSL	571	38.5	10.0	4.61	1.02	.48	20.59	9.7	5.4
Deltapine 62	559	36.2	11.0	4.75	1.13	.51	22.70	7.8	4.9
McNair 220	558	36.3	10.9	4.62	1.10	.51	22.28	7.6	4.9
Coker 310	557	36.3	11.8	5.38	1.14	.52	22.77	8.3	4.6
Coker 315	543	37.4	11.0	4.69	1.10	.50	20.37	7.8	4.9
HAS 2344	541	36.2	9.9	5.34	1.09	.49	20.58	9.3	4.6
Coker 3131	508	38.4	11.8	4.73	1.06	.50	19.88	9.3	4.9
LSD .05	101								
C.V.	15.6								

Planted: April 15, 1981
Harvested: September 24, 1981
Irrigated: July 27, 1981

Table 5. Average performance of 15 cotton varieties in four Delta environments[1/] in 1981.

	LINT PER ACRE			Boll	FIBER PROPERTIES				
		Lint	Seed	size	Length		Strength	Elonga-	Micro-
	Total	percent	index	grams	2.5%	50%	g/tex	tion	naire
DES 422	862	38.9	10.3	4.70	1.07	.50	19.63	7.3	4.9
Stoneville 213	839	38.1	10.5	4.95	1.07	.48	19.35	8.3	5.1
DES 56	834	37.5	10.5	4.73	1.08	.50	20.22	8.1	4.9
McNair 235	833	37.9	10.7	4.60	1.08	.50	19.84	7.3	5.0
Stoneville 825	831	38.2	10.5	4.80	1.07	.49	18.14	6.9	5.2
McNair 220	812	36.7	11.0	4.86	1.08	.51	20.63	7.0	5.0
Deltapine 41	808	41.1	8.9	4.65	1.07	.49	19.63	7.3	4.9
Coker 315	795	37.3	11.3	5.30	1.11	.51	20.18	7.4	4.8
Deltapine 55	791	39.4	9.8	4.81	1.08	.49	19.10	8.2	4.8
Deltapine 62	783	37.4	11.1	5.27	1.12	.52	20.71	7.7	5.0
Deltapine NSL	782	38.6	10.1	4.95	1.04	.49	19.29	9.4	5.2
Stoneville 506	781	37.1	10.7	4.87	1.09	.50	19.62	8.5	5.0
Coker 3131	765	38.6	11.6	5.19	1.07	.50	18.77	7.9	4.8
HAS 2344	733	37.1	10.1	4.80	1.07	.49	19.23	8.6	4.7
Coker 310	712	36.6	11.5	5.57	1.12	.52	21.34	7.2	4.6

1/ Four environments - Stoneville 2, Tunica 1, Sumner 1.

Table 6. Performance of 10 cotton varieties in 12 Delta environments[1/], 1979-1981 average.

	LINT PER ACRE		Boll	FIBER PROPERTIES				
	Total	Lint percent	Seed index	size grams	Length 2.5%	Length 50%	Strength g/tex	Elonga-tion	Micro-naire
DES 422	879	38.9	10.2	4.70	1.11	.55	19.33	7.2	4.6
Stoneville 825	859	38.1	10.7	4.78	1.10	.53	18.70	6.4	5.0
DES 56	854	37.8	10.6	4.78	1.12	.55	20.48	7.7	4.7
Deltapine 41	836	41.3	9.1	4.71	1.11	.54	19.72	7.1	4.7
Stoneville 506	818	37.0	10.9	4.84	1.12	.54	19.52	7.9	4.8
Stoneville 213	815	37.9	10.6	4.98	1.11	.54	19.27	7.8	5.0
McNair 235	810	37.9	10.7	4.78	1.11	.55	20.30	6.7	4.8
Deltapine 55	799	39.5	9.9	4.89	1.11	.54	18.91	7.5	4.6
Coker 315	779	38.0	11.0	5.20	1.16	.57	20.90	6.8	4.6
Coker 310	731	36.8	11.4	5.48	1.16	.57	20.98	6.8	4.5
LSD .05	45								
C.V.	6.7								

1/ Twelve environments - Stoneville 6, Tunica 3, Sumner 3.

Table 7. Results of 1981 Cotton Variety Test on a Grenada silt loam soil at Holly Springs.

	LINT PER ACRE					Boll	FIBER PROPERTIES				
	Total	First pick	Percent first pick	Lint percent	Seed index	size grams	Length 2.5%	Length 50%	Strength g/tex	Elonga-tion	Micro-naire
DES 422	954	556	58	38.7	9.8	5.50	1.04	.49	20.23	9.2	4.6
McNair 235	927	512	55	37.7	10.1	6.14	1.03	.51	20.66	8.1	4.8
DES 56	873	505	58	37.1	10.2	5.22	1.06	.51	19.87	10.1	4.9
Stoneville 506	871	464	53	36.4	9.5	4.99	1.09	.52	20.37	8.7	4.4
Deltapine NSL	865	418	48	36.7	9.4	5.06	1.05	.51	19.59	10.4	4.3
Stoneville 825	811	398	49	36.1	10.1	5.59	1.03	.48	20.37	7.4	5.1
Stoneville 213	779	325	42	37.0	10.6	6.02	1.04	.50	20.30	8.9	5.0
Deltapine 55	769	385	50	39.8	8.9	5.05	1.07	.49	20.38	9.6	4.3
Deltapine 41	763	356	47	39.9	8.8	4.86	1.07	.51	21.52	9.4	4.7
HAS 2344	758	490	65	37.0	9.9	4.95	1.03	.47	20.66	10.6	4.4
Coker 3131	750	390	52	39.7	10.7	5.61	1.05	.51	21.37	9.0	4.6
Coker 310	686	335	49	38.0	10.5	6.12	1.09	.52	22.88	6.6	4.5
Deltapine 62	683	246	36	34.5	10.7	5.50	1.11	.54	22.23	10.1	4.2
Coker 315	675	294	43	37.4	9.9	5.80	1.08	.50	22.52	8.6	4.6
LSD .05	70										
C.V.	7.6										

Planted: May 11, 1981
Harvested: October 12 and 30, 1981

Table 8. Performance of eleven cotton varieties at Holly Springs, 1980-81 average.

	LINT PER ACRE				Boll	FIBER PROPERTIES				
		Percent				Length		Strength	Elonga-	Micro-
	Total	first pick	Lint percent	Seed index	size grams	2.5%	50%	g/tex	tion	naire
McNair 235	907	69	38.2	10.2	5.48	1.07	.52	21.26	6.8	4.9
DES 422	851	70	39.2	9.9	5.25	1.07	.51	20.27	7.2	4.8
DES 56	810	70	38.0	10.3	4.80	1.10	.54	20.37	8.4	5.0
Stoneville 506	789	68	36.4	10.6	4.80	1.11	.53	20.51	7.5	4.9
Stoneville 825	786	65	37.5	10.3	5.22	1.06	.50	19.91	6.2	5.4
Stoneville 213	762	60	37.9	10.6	5.42	1.07	.52	20.34	8.0	5.3
Deltapine 41	762	62	41.2	9.1	4.67	1.09	.52	21.05	7.7	5.2
Deltapine 55	729	67	39.7	9.5	4.88	1.09	.51	20.37	7.9	4.8
Coker 3131	729	63	40.4	11.2	5.04	1.08	.52	20.87	7.9	4.9
Coker 315	724	62	38.3	10.4	5.35	1.11	.53	21.94	7.1	4.9
Coker 310	705	63	38.3	10.8	5.58	1.11	.53	21.48	6.0	4.8

Table 9. Results of 1981 Cotton Variety Test on a Marietta sandy loam soil at Mississippi State University.

	LINT PER ACRE		Boll	FIBER PROPERTIES				
				Length		Strength	Elonga-	Micro-
	Total	Lint percent	size grams	2.5%	50%	g/tex	tion	naire
Deltapine 41	1148	43.1	5.1	1.09	.51	21.45	8.2	4.9
McNair 235	1122	40.7	5.0	1.08	.50	21.02	8.3	4.3
Stoneville 213	1117	39.3	5.3	1.08	.50	20.95	8.8	4.8
Deltapine 55	1112	41.1	5.1	1.11	.49	20.81	8.0	4.6
Stoneville 825	1104	41.0	4.8	1.07	.47	19.45	7.9	5.2
Deltapine 62	1088	39.4	5.4	1.11	.50	22.09	9.0	4.8
Coker 315	1079	38.9	5.5	1.08	.47	22.64	7.5	4.4
Coker 310	1067	39.6	5.5	1.12	.49	22.41	8.4	4.4
Coker 3131	1059	40.6	4.5	1.07	.48	21.09	8.0	4.4
Deltapine-NSL	1022	39.6	5.3	1.04	.47	20.50	10.2	5.2
DES 56	1019	39.7	4.8	1.07	.48	21.02	8.0	4.7
DES 422	1007	40.5	5.0	1.07	.48	20.00	7.6	4.4
Stoneville 506	1001	39.4	4.8	1.05	.45	20.52	9.4	5.0
HAS 2344	913	38.8	4.6	1.09	.48	21.09	9.0	4.4
LSD .05	101							
C.V.	8.2							

Planted: April 28, 1981
Harvested: October 7, 1981

Table 10. Performance of eleven cotton varieties at Mississippi State University, 1980-81 average.

	LINT PER ACRE		Boll	FIBER PROPERTIES				
			size	Length		Strength	Elonga-	Micro-
	Total	Lint percent	grams	2.5%	50%	g/tex	tion	naire
McNair 235	1144	39.6	5.1	1.11	.53	21.83	7.7	4.8
Deltapine 41	1143	41.6	5.0	1.11	.53	22.25	7.9	5.2
Coker 310	1117	38.7	5.4	1.15	.53	23.02	7.5	4.7
Coker 315	1116	39.1	5.3	1.11	.51	22.23	7.1	4.8
Deltapine 55	1114	40.1	5.2	1.13	.52	20.73	7.6	5.1
Stoneville 213	1112	37.9	5.5	1.12	.53	20.92	8.4	5.2
Coker 3131	1108	40.5	5.2	1.09	.51	21.24	7.7	4.8
Stoneville 825	1084	39.1	5.0	1.12	.51	20.60	7.1	5.4
Stoneville 506	1051	37.9	5.0	1.12	.51	21.61	8.9	5.1
DES 422	1027	39.0	5.1	1.11	.52	21.17	7.6	4.7
DES 56	1024	38.0	4.7	1.13	.53	21.27	7.9	4.9

Mention of a trademark or proprietary product does not constitute a guarantee or warranty of the product by the Mississippi Agricultural and Forestry Experiment Station or the Mississippi Cooperative Extension Service and does not imply its approval to the exclusion of other products that also may be suitable.