

Mississippi Cotton Variety Tests in 1978



By
R. R. Bridge
J. F. Chism
B. L. Arnold
N. W. Buehring
A. G. Douglas



MAFES

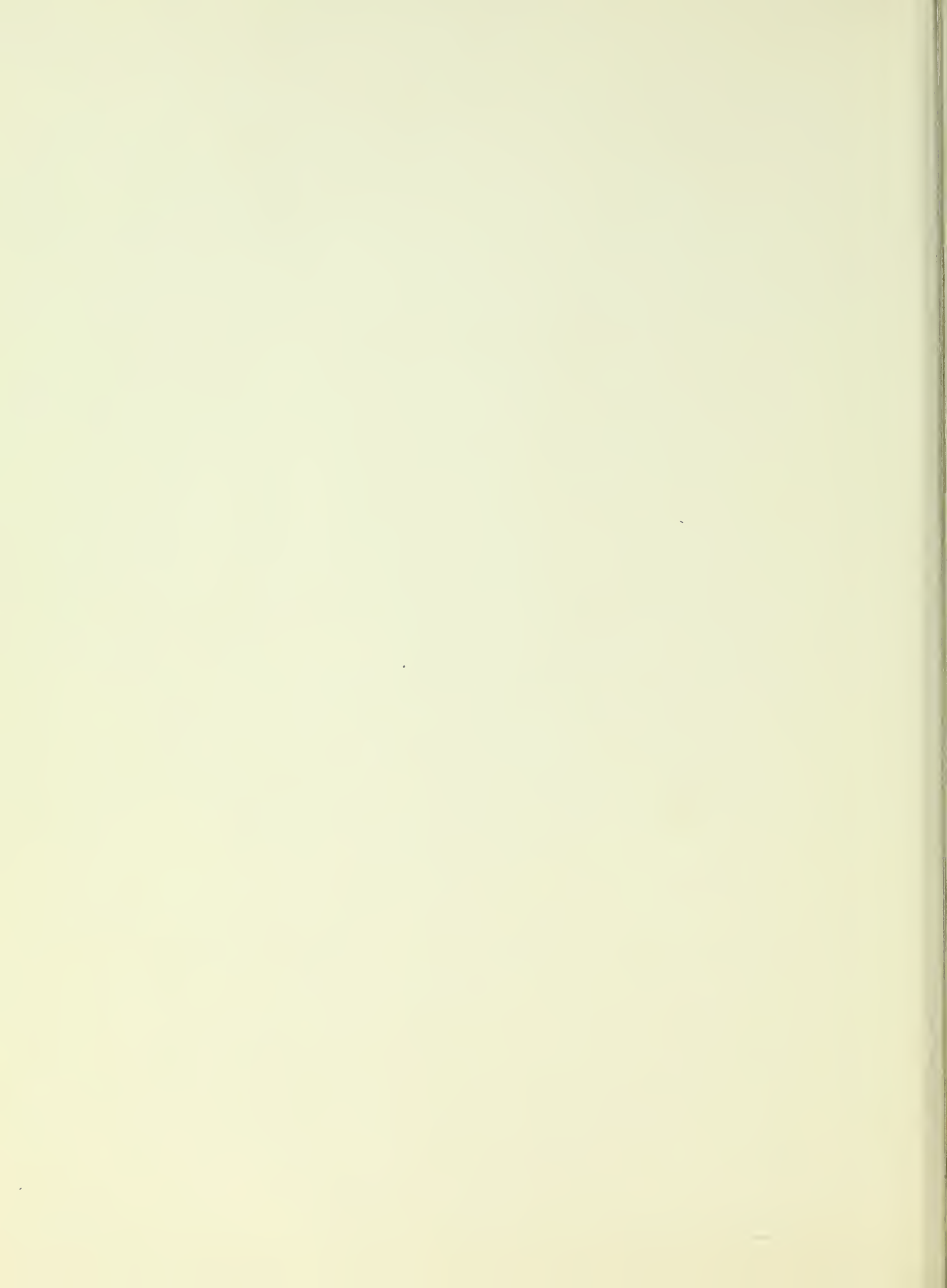
MISSISSIPPI AGRICULTURAL & FORESTRY EXPERIMENT STATION
R. RODNEY FOIL, DIRECTOR MISSISSIPPI STATE, MS 39762

Mississippi State University

James D. McComas, President

Louis N. Wise, Vice President





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- R. R. Bridge**, Plant Breeder, MAFES, Delta Branch
J. F. Chism, Assistant Agronomist, MAFES, Delta Branch
B. L. Arnold, Superintendent, MAFES, North Mississippi Branch
N. W. Buehring, Assistant Agronomist, MAFES, Northeast Mississippi Branch
A. G. Douglas, Agronomist, MAFES, Department of Agronomy

Mississippi Agricultural and Forestry Experiment Station
Mississippi State University

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Cotton varieties are evaluated each year in several Mississippi environments, and the results are reported as a guide to producers in selecting varieties most appropriate for their area. The 1978 trials were conducted in three Delta environments—Stoneville, Sumner and Tunica—and three hill area environments—Holly Springs, Mississippi State and Verona.

The 17 varieties tested at Stoneville and Tunica in 1978 are

included in the Cooperative Regional Variety Testing Program. 'McNair 235', 'Coker 315', 'Deltapine 7141' and 'Rex 713' were evaluated for the first time. Two of the varieties included in the Stoneville and Tunica trials—'Acala SJ-5' and 'Paymaster 303'—were not evaluated at Sumner and three varieties—Acala SJ-5, Paymaster 303 and McNair 235—were not included in the trials at Holly Springs, Mississippi State and Verona.

Each entry was randomized and replicated six times. Yield determinations were based on 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 U.S.D.A. Cotton Fiber Laboratory at Knoxville, Tennessee and the MAFES Cotton Fiber Laboratory at Stoneville.

Results

Delta, 1978

The Stoneville test was planted April 18 on a Bosket very fine sandy loam soil. Slow stand establishment and slow growth resulted from the excessive moisture and cool temperatures at planting time. The plants experienced drought stress in early July and the plots were irrigated on July 11 and July 25. The test was harvested on September 29. Lint yields ranged from 800 to 1126 lbs per acre (Table 1).

The Sumner test was planted

April 21 on a Dubbs sandy loam soil. The test was harvested on October 6. Growing conditions at Sumner were poor at planting time, but each variety tested produced more lint in this trial than in either of the other Delta trials. Yields ranged from 1000 to 1407 lbs of lint per acre (Table 2).

Planting of the test at Tunica on a Dundee silt loam soil was delayed until May 17 because of excessive soil moisture and low temperatures. Excellent growing

conditions resulted in good stands and rapid growth. The test was harvested twice, and maturity at first harvest on October 11 ranged from 75 to 89%. Lint yields ranged from 653 to 1110 lbs per acre (Table 3).

Average yield of the 15 varieties that were tested at each Delta location in 1978 ranged from 902 to 1214 lbs of lint per acre (Table 4). Lint yield of the 15 varieties averaged over the three Delta trials was 1085 lbs per acre.

Delta, Two-Year and Four-Year Averages

Lint yield of the eleven varieties grown in seven Delta environments over the two-year

period (1977-78) ranged from 1016 to 1114 lbs per acre (Table 5). Nine varieties have been tested in 13

Delta environments for four years (1975-78). Average yields over this four-year period ranged from 814 to

912 lbs of lint per acre (Table 6). The small differences in average yields of commercially available varieties

over a time period of this length indicate that factors other than

yield need to be considered in variety selection.

Hill Area, 1978

The Mississippi State test was planted May 17 on a Leeper fine sandy loam soil. Lint yields ranged from 948 to 1257 lbs per acre (Table 7). Maturity on September 8 ranged from 14.6 to 31.4%.

Stands from the April 25 plant-

ing on Catalpa silty clay loam soil at Verona were poor, and the results are not reported. Lint yields of a second test planted May 17 on the same soil type ranged from 422 to 580 lbs per acre (Table 8).

The test at Holly Springs was

planted May 11 on a Grenada silt loam soil. Lint yields ranged from 738 to 991 lbs per acre (Table 9). Maturity at first harvest on September 25 ranged from 44 to 64%.

Hill Area, Two-Year Averages

Nine varieties have been tested at Holly Springs for two years (1977-78). Average yields over this two-year period ranged from 762 to 845 lbs of lint per acre (Table 10).

These small differences in average yields indicate that factors other than yield also need to be considered in selecting varieties for the hill area. One important factor is

earliness, and the earliest of the commercially available varieties tested at Holly Springs have been DES 56, DES 24, Stoneville 731 N and Coker 304.

Table 1. Results of the 1978 Cotton Variety Test on Bosket very fine sandy loam soil at Stoneville, Miss.

	Lint per acre	Lint percent	Seed index	Boll size grams	Fiber Properties				
					Length		Strength g/tex	Elonga- tion	Micro- naire
					2.5%	50%			
McNair 235	1126	37.0	11.4	5.32	1.15	.58	19.48	7.0	4.8
DES 56	1124	36.0	10.8	4.84	1.17	.59	19.15	8.3	4.3
Deltapine 61	1054	35.9	10.5	5.41	1.17	.59	19.75	9.0	4.5
Coker 315	1039	36.0	11.3	5.21	1.21	.60	19.54	7.3	4.4
Deltapine 26	1035	38.1	10.0	4.80	1.16	.57	19.55	7.4	4.3
Deltapine 7141	1018	38.3	9.2	4.66	1.18	.57	19.67	7.3	4.0
Stoneville 825	1002	36.0	11.5	5.19	1.16	.57	18.35	6.3	4.6
Coker 310	998	35.6	11.6	5.73	1.19	.58	20.58	7.0	4.2
Stoneville 213	994	35.5	11.6	5.23	1.17	.58	18.96	8.0	4.7
DES 24	965	35.2	12.3	5.62	1.19	.59	20.03	7.5	4.6
Stoneville 256	963	35.7	10.5	5.23	1.17	.57	17.55	6.6	4.4
Coker 304	962	35.0	11.5	5.43	1.23	.59	20.54	6.4	4.2
Deltapine 55	957	36.9	10.0	4.99	1.17	.55	18.38	7.8	4.4
Stoneville 731N	949	36.5	10.9	4.99	1.15	.55	18.34	6.6	4.7
Paymaster 303	916	34.7	12.5	6.27	1.09	.54	18.83	6.8	4.6
Rex 713	821	31.8	13.1	6.04	1.15	.55	17.27	8.1	4.1
Acala SJ 5	800	35.5	12.4	5.91	1.21	.63	23.23	6.4	4.5
C.V.	5.8								
LSD .05	68								

Planted: April 18, 1978

Harvested: September 29, 1978

Table 2. Results of the 1978 Cotton Variety Test on a Dubbs sandy loam soil at Sumner, Miss.

	Lint per acre	Lint percent	Seed index	Boll size grams	Fiber Properties				
					Length		Strength g/tex	Elonga- tion	Micro- naire
					2.5%	50%			
McNair 235	1407	40.2	11.3	5.55	1.14	.59	18.69	7.6	5.1
Deltapine 26	1392	42.7	10.8	5.38	1.14	.58	19.72	8.4	5.4
Coker 310	1320	39.1	11.6	5.54	1.20	.59	19.53	7.6	4.5
Deltapine 7141	1288	43.4	9.8	5.49	1.14	.58	20.21	7.5	5.0
DES 56	1274	38.9	11.0	5.21	1.14	.57	19.02	8.4	4.8
DES 24	1260	38.9	11.9	5.46	1.17	.59	20.41	8.8	4.9
Stoneville 213	1256	39.5	11.3	5.60	1.11	.57	18.23	8.7	5.2
Deltapine 55	1249	41.0	10.2	5.27	1.16	.57	18.57	7.9	4.7
Stoneville 256	1238	39.7	11.7	5.58	1.16	.58	18.34	5.7	5.3
Stoneville 731N	1228	40.0	11.7	5.40	1.14	.57	18.76	7.3	5.4
Coker 315	1224	40.8	11.0	5.48	1.20	.60	19.81	8.3	4.8
Deltapine 61	1221	39.8	10.5	5.61	1.14	.58	19.00	10.5	5.0
Coker 304	1195	39.0	11.3	5.57	1.21	.60	19.96	7.7	4.5
Stoneville 825	1194	39.7	11.6	5.51	1.14	.58	18.31	7.3	5.5
Rex 713	1000	34.5	13.0	5.67	1.13	.55	16.66	8.5	4.4
C.V.	8.3								
LSD .05	119								

Planted: April 21, 1978

Harvested: October 6, 1978

Table 3. Results of the 1978 Cotton Variety Test on a Dundee sandy loam soil at Tunica, Miss.

	Lint Per Acre			Lint percent	Seed index	Boll size grams	Fiber Properties				
	Total	First pick	Percent first pick				Length		Strength g/tex	Elongation	Micro-naire
							2.5%	50%			
McNair 235	1110	951	86	39.5	10.8	5.29	1.15	.58	19.70	6.5	4.7
Deltapine 26	1106	882	80	42.1	10.6	5.27	1.12	.56	19.26	7.9	5.3
Deltapine 7141	1056	906	86	41.8	9.3	5.11	1.15	.57	19.75	7.7	4.5
Stoneville 213	1050	861	82	38.5	11.0	5.63	1.13	.57	18.71	7.6	5.2
DES 24	1049	897	86	38.8	11.6	5.71	1.16	.59	19.91	8.7	4.8
Deltapine 55	1028	888	86	40.0	10.7	5.13	1.15	.57	19.04	7.7	4.4
DES 56	1018	879	86	38.1	10.9	5.15	1.16	.59	19.77	7.9	4.8
Stoneville 825	1017	904	89	38.9	10.5	4.98	1.13	.56	18.68	6.3	4.8
Coker 304	1014	846	83	38.5	11.8	5.80	1.17	.58	21.58	6.8	4.7
Deltapine 61	1012	810	80	38.5	11.0	5.79	1.16	.60	21.10	9.9	5.0
Coker 310	999	829	83	38.0	11.8	6.22	1.19	.60	20.65	6.7	4.7
Coker 315	986	835	85	39.5	11.1	5.40	1.21	.60	21.17	8.3	4.7
Stoneville 731N	976	861	88	39.5	11.1	5.07	1.10	.54	17.64	6.3	4.7
Stoneville 256	927	761	82	39.2	10.6	5.22	1.12	.55	18.70	6.6	4.9
REX 713	885	757	85	36.1	12.0	6.11	1.12	.55	17.44	8.0	4.4
Paymaster 303	801	674	84	37.2	12.2	6.15	1.10	.55	19.12	7.0	4.4
Acala SJ-5	653	489	75	39.1	12.6	6.69	1.15	.61	22.62	7.1	4.7
C.V.	9.9										
LSD .05	117										

Planted: May 17, 1978

Harvested: October 11 and October 30, 1978

Table 4. Average performance of 15 cotton varieties grown in three Delta environments¹ in 1978.

	Lint per acre	Lint percent	Seed index	Boll size grams	Fiber Properties				
					Length		Strength g/tex	Elongation	Micro-naire
					2.5%	50%			
McNair 235	1214	38.9	11.2	5.39	1.15	.58	19.29	7.0	4.9
Deltapine 26	1178	40.9	10.5	5.15	1.14	.57	19.51	7.9	5.0
DES 56	1139	37.7	10.9	5.07	1.16	.58	19.31	8.2	4.6
Deltapine 7141	1121	41.1	9.4	5.09	1.15	.57	19.87	7.5	4.5
Coker 310	1106	37.6	11.7	5.83	1.19	.59	20.25	7.1	4.5
Stoneville 213	1100	36.9	11.3	5.49	1.14	.57	18.63	8.1	5.0
Deltapine 61	1096	38.1	10.7	5.60	1.16	.59	19.95	9.8	4.8
DES 24	1091	37.6	11.9	5.60	1.17	.59	20.12	8.3	4.8
Coker 315	1083	38.8	11.1	5.36	1.21	.60	20.17	8.0	4.6
Deltapine 55	1078	39.3	10.3	5.13	1.16	.56	18.66	7.8	4.5
Stoneville 825	1071	38.2	11.2	5.23	1.14	.57	18.44	6.6	5.0
Coker 304	1057	37.5	11.5	5.60	1.20	.59	20.69	7.0	4.5
Stoneville 731N	1051	38.7	11.2	5.15	1.13	.55	18.25	6.7	4.9
Stoneville 256	1043	38.2	10.9	5.34	1.15	.57	18.20	6.3	4.9
Rex 713	902	34.1	12.7	5.94	1.13	.55	17.12	8.2	4.3
C.V.	8.3								
LSD .05	60								

¹Three environments - Stoneville, Tunica, Sumner.

Table 5. Performance of eleven cotton varieties in seven Delta environments,¹ 1977-78 average.

	Lint		Seed index	Boll size grams	Fiber Properties				
	per acre	Lint percent			Length	Strength g/tex	Elongation	Micro-naire	
									2.5%
Deltapine 26	1114	40.3	10.4	5.01	1.13	.55	19.55	7.4	4.9
DES 56	1099	37.2	11.0	4.89	1.16	.57	19.16	7.6	4.5
Stoneville 825	1081	37.8	11.4	5.07	1.14	.55	18.26	6.5	4.8
Coker 310	1080	37.2	11.6	5.73	1.20	.58	19.80	6.9	4.4
DES 24	1073	37.2	11.8	5.42	1.18	.57	20.31	8.0	4.7
Deltapine 55	1060	39.2	10.1	5.00	1.15	.55	18.63	7.6	4.4
Deltapine 61	1056	38.0	10.6	5.45	1.15	.57	19.83	9.2	4.8
Stoneville 213	1052	37.0	11.2	5.31	1.14	.56	18.44	7.8	4.8
Stoneville 713N	1046	38.1	11.3	5.01	1.13	.54	18.42	6.5	4.8
Stoneville 256	1041	37.8	11.2	5.23	1.15	.55	18.28	6.3	4.7
Coker 304	1016	37.5	11.6	5.38	1.20	.58	20.12	6.7	4.4

¹Seven environments - Stoneville 3, Sumner 2, Tunica 2.

Table 6. Performance of nine cotton varieties grown in 13 Delta environments¹ 1975-1978 average.

	Lint Per Acre		Lint percent	Seed index	Boll size grams	Fiber Properties				
	Total	Percent first pick				Length	Strength g/tex	Elongation	Micro-naire	
										2.5%
DES 24	912	86	38.1	11.4	5.45	1.16	.56	20.28	8.0	4.6
DES 56	909	87	37.8	10.7	4.83	1.14	.56	19.34	7.5	4.5
Deltapine 55	885	85	40.0	9.8	5.02	1.14	.54	18.69	7.4	4.4
Stoneville 731N	882	86	39.0	10.9	4.95	1.12	.54	18.15	6.3	4.7
Stoneville 213	852	82	37.8	10.8	5.19	1.12	.55	18.69	7.7	4.8
Coker 310	852	84	38.0	11.3	5.53	1.19	.57	20.07	7.0	4.3
Deltapine 61	849	80	38.4	10.4	5.38	1.14	.56	19.81	9.0	4.7
Stoneville 256	847	82	38.2	10.9	5.16	1.14	.54	18.27	6.3	4.6
Coker 304	814	85	38.3	11.1	5.24	1.19	.57	20.16	6.7	4.4

¹Thirteen environments - Stoneville 6, Tunica 4, Sumner 3.

Table 7. Results of the 1978 Cotton Variety Test on Leeper fine sandy loam soil at Mississippi State, Miss.

	Lint Per Acre			Boll size grams	Fiber Properties				
	Total	Percent open Sept. 8	Lint percent		Length		Strength g/tex	Elongation	Micro- naire
					2.5%	50%			
Deltapine 7141	1257	19.7	42.9	5.30	1.18	.60	20.78	5.9	4.8
Deltapine 55	1253	17.5	41.1	5.36	1.18	.56	18.77	6.5	4.5
Stoneville 213	1218	27.6	40.4	5.77	1.17	.57	19.37	6.3	5.0
Stoneville 825	1204	25.0	40.6	5.57	1.16	.56	18.85	5.3	5.1
DES 56	1194	31.4	39.9	5.21	1.18	.57	19.30	6.1	4.8
Deltapine 61	1182	19.0	39.8	5.66	1.18	.57	19.89	6.9	5.1
Deltapine 26	1171	14.6	41.8	5.47	1.16	.55	20.12	5.6	5.3
Coker 310	1171	26.1	39.6	5.88	1.21	.58	20.44	5.2	4.7
Stoneville 256	1163	22.3	40.9	5.52	1.18	.56	18.92	5.0	5.2
Coker 315	1154	25.9	40.7	5.80	1.25	.59	20.49	5.4	4.9
Stoneville 731N	1143	18.4	40.5	5.67	1.17	.56	19.07	5.7	5.2
Coker 304	1080	26.5	40.2	5.96	1.23	.58	20.63	6.2	4.9
DES 24	1056	21.9	39.4	5.86	1.19	.58	19.74	6.3	4.9
REX 713	948	28.3	36.6	6.32	1.14	.52	17.23	6.7	4.5
C.V.	16.5		1.9	23.7					
LSD .05	80		0.88	0.27					

Planted: May 17, 1978

Harvested: October 17, 1978

Table 8. Results of the 1978 Cotton Variety Test on Catalpa silty clay loam soil at Verona, Miss.

	Total lint per acre	Lint percent	Boll size grams	Fiber Properties				
				Length		Strength g/tex	Elongation	Micro- naire
				2.5%	50%			
Deltapine 26	580	42.3	4.28	1.10	.50	19.36	6.2	4.5
Deltapine 55	543	40.9	4.51	1.13	.50	18.85	5.9	4.0
Deltapine 7141	533	41.8	4.18	1.15	.51	19.67	5.5	3.7
Stoneville 213	530	39.5	5.31	1.14	.55	19.02	5.8	4.5
Stoneville 256	528	40.1	4.86	1.13	.51	17.98	5.0	4.3
Deltapine 61	510	39.9	4.73	1.13	.52	20.97	7.3	4.2
Coker 310	508	38.8	5.14	1.17	.54	19.33	5.4	3.8
Stoneville 731N	503	40.2	4.31	1.13	.49	19.18	5.1	4.2
Coker 304	483	39.4	5.63	1.17	.53	19.09	5.3	4.2
Stoneville 825	482	38.8	4.72	1.12	.50	17.96	5.0	4.0
DES 56	469	39.8	4.94	1.15	.55	19.31	5.9	4.1
Coker 315	460	39.4	5.47	1.18	.55	19.84	5.5	4.2
DES 24	430	39.2	5.28	1.14	.53	19.59	6.5	4.1
REX 713	422	36.4	5.84	1.10	.47	15.94	5.2	3.9
C.V.	13.9							
LSD .05	97							

Planted: May 17, 1978

Harvested: October 4, 1978

Table 9. Results of the 1978 Cotton Variety Test on a Grenada silt loam soil at Holly Springs, Miss.

	Lint Per Acre			Lint percent
	Total	First pick	Percent first pick	
Deltapine 55	991	528	53	39.9
Deltapine 26	962	419	44	41.4
DES 56	958	610	64	38.5
Coker 304	948	511	54	38.4
Stoneville 825	939	514	55	38.7
Coker 310	927	474	51	38.3
Stoneville 213	909	476	52	38.7
Deltapine 7141	902	454	50	41.4
DES 24	901	517	57	38.4
Deltapine 61	899	482	54	38.6
Stoneville 731N	893	515	58	39.3
Stoneville 256	884	434	49	39.1
Coker 315	832	436	52	39.1
REX 713	738	422	57	35.1
C.V.	8.7			
LSD .05	91			

Planted: May 11, 1978

Harvested: September 25 and October 17, 1978

Table 10. Performance of nine cotton varieties at Holly Springs, Miss. 1977-78 average.

	Lint Per Acre		
	Total	First pick	Percent first pick
DES 56	845	581	69
Deltapine 55	829	488	59
Stoneville 731N	822	508	62
Coker 304	806	498	62
DES 24	790	494	63
Stoneville 213	788	468	59
Coker 310	783	475	61
Stoneville 256	768	421	55
Deltapine 61	762	447	59

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