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Arkansas Cotton Variety and Strain Tests 1991

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COTTON

VARIETY AND STRAIN TESTS

1991

F. M. Bourland and J. S. Dacus

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ARKANSAS COTTON VARIETY AND STRAIN TESTS, 1991

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INTRODUCTION

Varieties and advanced strains of cotton were evaluated in 1991 by the Arkansas Agricultural Experiment Station. Varieties and some advanced breeding lines were evaluated in the 1991 Arkansas Cotton Variety Test. Entries in the 1991 Commercial Cotton Strain Test included both released varieties that have not been evaluated in Arkansas and advanced breeding lines that may soon be available to producers.

Varieties in the 1991 Arkansas Cotton Variety Test were evaluated at the Northeast Research and Extension Center (irrigated and non-irrigated) at Keiser, Arkansas; the Delta Branch Experiment Station (irrigated) at Clarkedale, Arkansas; the Cotton Branch Experiment Station (irrigated and non-irrigated) at Marianna, Arkansas; and the Southeast Branch Station (irrigated) at Rohwer, Arkansas. These locations vary with respect to soil type, disease and insect problems, environmental factors and cultural practices but do not encompass all cotton growing conditions in the state. The Commercial Cotton Strain Tests were irrigated tests and were conducted adjacent to the irrigated 1991 Arkansas Cotton Variety Tests at Clarkedale and Marianna.

MATERIALS AND METHODS

Within each test, entries were arranged as a randomized complete block design with four replications. Plots were either two or four rows, 45 to 50 ft long on 38- or 40-in. centers. Recommended management practices were followed in each test. Soil types, fertilization and dates of planting, irrigation, defoliation and harvests for the tests are indicated on the respective tables. Planting of all tests were delayed by heavy rains in May. Except for the non-irrigated tests at Keiser and Marianna, each test was furrow-irrigated as needed.

Where two harvests were made, variation in earliness was determined by percentage of total harvest in the first harvest. The tests at Marianna were once-over harvested. Lint fraction and fiber data were obtained from hand-harvested samples (50 random bolls) from two replications of each test. Fiber properties were determined using HVI classification.

The 30 entries of the 1991 Arkansas Variety Test included two national ('Coker 320' and 'Deltapine 50') and four regional ('DES 119', 'Deltapine 20', 'Stoneville C-130' and 'Stoneville 453') standards. Two standards, DES 119 and 'Stoneville 453', and 26 lines were evaluated in the Commercial Cotton Strain Tests. The seed of each entry was supplied by the respective breeders. Except for the eight "Ark." and the one "Miscot" breeding lines, all seed had been doubled-treated (two fungicides, no systemic insecticide). Seed of the "Ark." and "Miscot" lines were not treated and had been produced in the Mississippi River delta in 1990.

Yield (lint yield, percent first pick and lint fraction) and fiber quality (micronaire, length, length uniformity, strength and elongation) variables were analyzed over locations and within locations using appropriate analysis of variance statistical procedures. Means were separated by Fisher's Least Significant Difference (LSD) Test at the 0.05 level of probability when F-tests showed significant differences. Coefficients of variation (CV) are reported for each measurement.

RESULTS

Arkansas Cotton Variety Test

Significant variety by location interactions were found for all measurements except micronaire, fiber length and length uniformity index (Table 1). Significant interaction for lint yield indicates that relative performance of the varieties varied at different locations. The range of adaptability of some varieties may be limited. Varying harvest dates over locations may have contributed to the significant interaction for percent first pick. Over the past three years, variety by location interactions for lint fraction and all fiber quality properties have generally been low or not significant. Variation among locations and among varieties was significant for each of the measurements. Compared to means from the 1988 through 1991 Arkansas Cotton Variety Tests, the 1991 test had the highest average lint fraction, micronaire, fiber length and length uniformity and second highest lint yield. Coefficients of variation in the 1991 test were generally lower than in the 1990 test but relatively higher than in the 1988 and 1989 tests.

Mean lint yield in irrigated tests was 29 and 55% greater than mean lint yield in non-irrigated tests at Keiser and Marianna, respectively (Tables 2, 3, 4, and 5). Since the two tests at Marianna were not adjacent, this difference may not be completely attributed to variation in water. However, five irrigations at Marianna compared to only two at Keiser suggest that moisture stress was greater in the non-irrigated test at Marianna than at Keiser. Despite the late planting date at Keiser, several late-maturing varieties, e.g. 'HyPerformer HS46' and 'Stoneville LA887', produced high yields. Compared to yields of early-maturing varieties, yields of most late-maturing varieties tended to be relatively higher in the non-irrigated than in the irrigated test at Keiser. The reverse trend was found in the Marianna tests.

To perform well at the Clarkedale site, a variety must possess tolerance to Verticillium wilt in addition to having good yield characteristics (Table 6). Lint

yields were not directly associated with relative maturity at this site. Among the 1991 test sites, mean lint yield was highest at Rohwer (Table 7). Late-maturing varieties tended to benefit from the relatively long season at Rohwer in 1991.

Average lint yields produced by 13 varieties for the past three years at six sites are presented in Table 8. Mean lint yields over test sites differed by only 3 lb/acre for the highest three varieties. Varietal selection should consider fiber properties and specific adaptation in addition to yield potential.

Commercial Cotton Strain Test

As indicated by significant strain by location interactions, the relative lint yield, lint fraction and length uniformity index of the strains varied between the two locations of the Commercial Cotton Strain Test (Table 9). Being adjacent to each other, the Commercial Strain Tests and Arkansas Cotton Variety Tests received equivalent management and environment. Only one strain, Stoneville 9573, numerically exceeded the yield of DES 119 while eight strains yielded numerically more than Stoneville 453 at Clarkedale and Marianna. Yields of some "Ark." breeding lines were apparently affected by their relatively low seed quality and subsequent poor stands. DES 119 and Stoneville 453 produced the first and 16th highest yields, respectively, at Clarkedale (Table 10) and the third and eighth highest yields, respectively, at Marianna (Table 11). Significant variation among the strains was found for all measurements except fiber uniformity index at Marianna.

ACKNOWLEDGMENTS

We express our appreciation to T.O. Evrard, Director, Northeast Research and Extension Center; Wallace Williams, Resident Director, Delta Branch Experiment Station; R.W. Turner, Resident Director, Cotton Branch Experiment Station; and M.H. Taylor, Resident Director, Southeast Branch Station. Annual evaluation of cotton varieties is made possible by the work of the research assistants and technicians at these locations.

Table 1. Results of the 1991 Arkansas Cotton Variety Tests across locations.

Variety/ location	Lint yield	First pick	Lint fract.	Fiber properties[1]				
				Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%	%		in.	%	g/tex	
Deltapine 5415	1098	83.8	41.1	4.82	1.17	86.2	26.9	9.1
Stoneville LA887	1090	88.3	40.7	4.53	1.17	85.9	28.1	8.9
Chembred 333	1089	89.0	40.2	4.57	1.14	85.4	25.8	8.8
Chembred 1135	1063	84.8	40.2	4.63	1.15	85.1	27.3	8.5
Stoneville 453	1062	86.8	40.4	4.72	1.15	85.2	25.5	8.3
Deltapine 51	1057	84.3	39.4	4.83	1.17	86.0	24.4	8.5
Deltapine 20	1044	86.7	40.1	4.67	1.14	85.5	24.7	8.8
DES 119	1041	88.0	40.3	4.73	1.16	86.3	26.6	9.2
Deltapine 5690	1035	84.4	40.2	4.61	1.16	85.7	28.1	8.5
HyPerformer HS46	1029	87.1	40.1	4.41	1.18	85.8	28.7	8.7
Delcot 277	1028	82.8	40.5	4.75	1.19	86.0	27.2	8.6
Chembred 407	1026	84.4	39.8	4.78	1.16	85.4	27.0	8.3
S-35	1012	84.7	39.4	4.67	1.16	85.3	27.2	8.3
Stoneville 907	1012	89.7	38.8	4.95	1.16	85.6	28.8	9.2
HyPerformer HS23	1010	82.5	38.9	4.33	1.16	85.2	26.8	8.3
Terra C40	1009	86.8	39.0	4.58	1.14	85.2	24.1	8.6
Stoneville 69132	1008	85.7	41.0	4.48	1.10	85.6	26.0	8.9
Deltapine 90	1006	84.3	39.7	4.67	1.17	85.5	29.4	8.8
Sure-Grow S1001	990	82.7	39.7	4.48	1.18	85.9	28.2	8.7
Chembred 219	985	86.4	39.7	4.56	1.15	84.8	25.9	8.1
Stoneville C-130	981	83.6	40.4	4.63	1.17	85.7	26.5	8.3
Stoneville 506	976	84.5	38.0	4.66	1.18	85.5	25.9	8.4
Terra 207	973	85.8	39.5	4.68	1.16	86.3	26.9	8.9
Georgia King	973	80.2	41.0	4.75	1.17	86.3	28.0	8.7
Deltapine 50	967	85.2	37.0	4.54	1.17	85.9	25.3	8.6
Coker 320	961	80.9	39.8	4.83	1.15	86.0	28.4	8.7
Stoneville 324	954	87.1	38.9	4.40	1.18	86.3	28.5	9.0
Miscot 8303-54	944	90.2	38.4	4.69	1.18	86.0	28.1	8.6
Arkot 518	930	86.4	38.6	4.50	1.20	85.7	24.8	8.1
HyPerf.HB91-171B	815	82.5	38.9	4.62	1.18	85.9	27.2	8.4
LSD 0.05	67	2.8	1.0	0.23	0.02	0.6	1.2	0.3
Keiser, irrigated	998	86.2	39.1	4.34	1.18	86.1	27.0	8.7
Keiser, non-irri.	707	90.6	40.6	4.47	1.16	85.8	27.0	8.6
Clarkedale	1167	88.1	37.6	4.51	1.18	86.3	25.7	8.4
Marianna,irrigated	1271	--	41.3	5.07	1.14	85.3	26.9	8.8
Marianna,non-irri.	572	--	39.9	4.94	1.15	84.8	28.3	8.6
Rohwer	1316	76.2	39.4	4.49	1.18	85.9	26.4	8.5
LSD 0.05	30	1.1	0.4	0.10	0.01	0.3	0.6	0.1
Mean	1005	85.1	39.7	4.64	1.16	85.7	26.9	8.6
C.V. (%)	11.8	4.7	3.1	5.9	2.0	0.9	5.7	4.2
Variety X Loc.	**	**	**	ns	ns	ns	**	**

**Significant at the 0.01 probability level.

[1]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) determined using HVI classing.

ERRATA

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Delcot 277 in tables 1 - 7 should be Delcot 344.

HyPerformer HS46	964	89.2	40.4	4.0	1.20	85.9	31.1	9.1
Coker 320	961	80.1	39.6	4.6	1.19	85.7	27.9	8.3
Sure-Grow S1001	955	84.8	38.1	4.0	1.19	86.4	29.8	8.9
Georgia King	947	78.4	41.2	4.6	1.21	87.0	27.8	9.0
Stoneville 506	941	88.8	37.5	4.4	1.19	86.2	25.6	8.5
Chembred 407	940	84.8	38.6	4.4	1.18	85.6	27.2	8.3
Deltapine 90	908	81.7	37.2	4.4	1.18	86.2	29.8	9.0
Stoneville 324	902	88.9	37.9	3.9	1.18	87.2	28.1	9.0
Miscot 8303-54	891	91.0	37.4	4.5	1.18	85.9	30.0	9.0
Terra 207	886	84.8	37.8	4.6	1.19	87.0	26.6	9.1
Arkot 518	864	82.7	38.8	4.3	1.22	86.8	23.5	7.9
HyPerf.HB91-171B	782	82.5	39.0	4.3	1.20	85.8	25.6	7.9
Mean	998	86.2	39.1	4.3	1.18	86.1	27.0	8.7
LSD 0.05	119	7.4	2.1	ns	0.03	0.8	3.1	0.6
CV (%)	8.5	6.1	2.7	7.0	1.2	1.5	5.7	3.1

[1]Planted May 31; nitrogen fertilization included preplant (45 lb) on May 23, side-dressed (70 lb) on July 31 and foliar fed (1.0 lb) on July 8 and 15; irrigated July 24 and August 6; defoliated September 30; and harvested October 7 and 16.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) using HVI classing.

Table 2. Results of the 1991 Arkansas Cotton Variety Test with irrigation on Sharkey clay soil at Keiser, Arkansas[1].

Variety	Lint yield	First pick	Lint fract.	Fiber properties[2]				
				Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%	%		in.	%	g/tex	
DES 119	1196	91.9	42.2	4.6	1.17	86.8	26.7	9.4
Chembred 333	1152	88.3	39.1	4.2	1.15	85.8	24.3	8.5
Deltapine 51	1143	92.1	40.1	4.6	1.19	86.5	26.2	8.9
Stoneville 453	1096	89.4	40.6	4.5	1.17	86.0	25.4	8.5
HyPerformer HS23	1094	81.0	38.1	3.9	1.16	86.3	25.3	7.9
Deltapine 20	1081	91.3	39.7	4.2	1.14	85.8	24.4	9.0
Chembred 219	1063	88.9	38.7	3.9	1.19	85.2	27.5	8.4
Stoneville LA887	1063	92.9	40.9	3.9	1.18	86.1	27.6	9.0
Stoneville C-130	1040	83.8	39.9	4.3	1.19	85.8	26.8	8.2
Chembred 1135	1037	83.8	39.2	4.1	1.13	83.6	26.4	8.3
Deltapine 50	1035	87.2	36.2	4.2	1.17	85.9	24.4	8.8
Terra C40	1027	90.2	37.9	4.1	1.15	86.6	22.4	8.6
Deltapine 5690	1023	82.0	39.5	4.6	1.17	85.3	29.8	8.9
Deltapine 5415	1019	85.9	39.5	4.5	1.18	86.5	27.4	9.5
[illegible]icot 277	1012	78.8	39.7	4.4	1.21	86.8	27.9	8.5
S-35	980	83.7	38.9	4.2	1.18	86.1	27.6	8.5
Stoneville 907	979	91.1	38.0	4.5	1.18	86.3	28.8	9.4
Stoneville 69132	971	84.9	40.1	4.5	1.10	85.9	26.0	9.3
HyPerformer HS46	964	89.2	40.4	4.0	1.20	85.9	31.1	9.1
Coker 320	961	80.1	39.6	4.6	1.19	85.7	27.9	8.3
Sure-Grow S1001	955	84.8	38.1	4.0	1.19	86.4	29.8	8.9
Georgia King	947	78.4	41.2	4.6	1.21	87.0	27.8	9.0
Stoneville 506	941	88.8	37.5	4.4	1.19	86.2	25.6	8.5
Chembred 407	940	84.8	38.6	4.4	1.18	85.6	27.2	8.3
Deltapine 90	908	81.7	37.2	4.4	1.18	86.2	29.8	9.0
Stoneville 324	902	88.9	37.9	3.9	1.18	87.2	28.1	9.0
Miscot 8303-54	891	91.0	37.4	4.5	1.18	85.9	30.0	9.0
Terra 207	886	84.8	37.8	4.6	1.19	87.0	26.6	9.1
Arkot 518	864	82.7	38.8	4.3	1.22	86.8	23.5	7.9
HyPerf.HB91-171B	782	82.5	39.0	4.3	1.20	85.8	25.6	7.9
Mean	998	86.2	39.1	4.3	1.18	86.1	27.0	8.7
LSD 0.05	119	7.4	2.1	ns	0.03	0.8	3.1	0.6
CV (%)	8.5	6.1	2.7	7.0	1.2	1.5	5.7	3.1

[1]Planted May 31; nitrogen fertilization included preplant (45 lb) on May 23, side-dressed (70 lb) on July 31 and foliar fed (1.0 lb) on July 8 and 15; irrigated July 24 and August 6; defoliated September 30; and harvested October 7 and 16.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) using HVI classing.

Table 3. Results of the 1991 Arkansas Cotton Variety Test without irrigation on Sharkey clay soil at Keiser, Arkansas[1].

Variety	Lint yield	First pick	Lint fract.	Fiber properties[2]				
				Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%	%		in.	%	g/tex	
HyPerformer HS46	785	92.0	40.6	3.9	1.19	86.8	30.4	9.0
HyPerformer HS23	773	87.9	40.3	4.4	1.14	84.8	29.1	8.5
Stoneville LA887	770	93.0	42.5	4.5	1.15	85.2	28.9	9.1
Stoneville 453	769	92.2	42.4	4.5	1.15	85.0	23.6	7.7
Stoneville 69132	768	88.4	42.6	4.4	1.11	86.0	25.4	8.5
Deltapine 5415	766	90.9	44.0	4.8	1.15	85.7	26.3	9.1
Stoneville 907	764	91.8	39.1	4.8	1.15	85.0	30.3	9.1
Chembred 219	763	90.9	40.4	4.3	1.13	84.4	25.9	7.8
Stoneville 324	763	94.3	40.5	4.1	1.17	86.9	27.4	9.0
Chembred 407	756	90.9	40.5	4.6	1.16	85.3	27.5	8.3
DES 119	743	92.8	41.1	4.5	1.14	86.4	27.7	9.5
Deltapine 51	740	90.4	40.0	5.0	1.17	86.5	23.6	8.5
Stoneville C-130	730	89.8	40.0	4.4	1.18	86.1	27.3	8.6
Chembred 333	730	92.6	41.7	4.5	1.13	84.8	25.4	8.8
Deltapine 50	730	91.7	38.0	4.4	1.18	86.0	26.3	8.0
Chembred 1135	728	91.4	39.6	4.5	1.16	85.0	25.8	7.8
Terra C40	699	91.9	40.5	4.4	1.13	85.6	23.8	8.7
Delcot 277	692	88.1	40.5	4.7	1.17	85.4	27.0	8.8
S-35	689	89.3	39.8	4.6	1.16	84.6	27.0	8.3
Deltapine 90	689	91.3	40.6	4.3	1.17	86.1	28.6	8.5
Deltapine 20	689	91.6	41.2	4.6	1.12	85.3	24.6	8.9
Deltapine 5690	680	90.4	40.0	3.8	1.15	85.6	27.4	8.3
Georgia King	676	89.4	41.8	4.3	1.17	86.4	28.4	8.4
Terra 207	674	90.4	40.9	4.4	1.14	86.7	28.3	9.5
Stoneville 506	664	91.3	40.0	4.4	1.18	86.2	27.9	8.8
Coker 320	647	89.5	40.5	4.5	1.08	86.8	28.1	8.4
Sure-Grow S1001	638	86.0	40.2	4.5	1.20	86.3	28.5	8.5
Miscot 8303-54	608	90.6	39.3	4.6	1.17	86.2	26.9	8.6
Arkot 518	549	90.4	40.5	4.2	1.20	86.3	24.4	8.4
HyPerf.HB91-171B	529	85.5	39.6	4.4	1.17	86.3	27.7	8.3
Mean	707	90.6	40.6	4.5	1.16	85.8	27.0	8.6
LSD 0.05	84	3.8	1.5	ns	0.05	1.3	3.4	0.8
CV (%)	8.5	3.0	1.8	7.1	2.7	0.7	6.1	4.4

[1]Planted May 31; nitrogen fertilization included preplant (45 lb) on May 23, side-dressed (70 lb) on July 31 and foliar fed (1.0 lb) on July 8 and 15; defoliated September 30; and harvested October 6 and 17.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) using HVI classing.

Table 4. Results of the 1991 Arkansas Cotton Variety Test with irrigation on Calloway silt loam soil at Marianna, Arkansas[1].

Variety	Lint yield	Lint fract.	Fiber properties[2]				
			Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%		in.	%	g/tex	
Stoneville LA887	1494	44.0	5.2	1.15	85.5	29.1	9.2
Chembred 333	1435	42.1	5.0	1.15	85.9	26.5	9.0
Deltapine 90	1419	43.1	5.3	1.12	84.6	31.3	9.3
DES 119	1410	42.4	5.2	1.12	85.8	27.4	9.5
HyPerformer HS23	1377	40.4	4.7	1.15	85.0	26.0	8.4
Deltapine 51	1373	42.2	5.3	1.16	86.4	23.9	8.6
S-35	1362	40.5	5.0	1.13	84.7	27.1	8.4
Deltapine 5415	1360	42.5	5.2	1.15	86.0	26.1	8.7
Coker 320	1358	42.2	5.5	1.16	85.4	28.3	9.3
Chembred 1135	1326	42.9	5.1	1.15	85.6	27.8	8.5
Deltapine 20	1324	41.8	5.1	1.11	85.5	24.3	9.1
Deltapine 5690	1322	41.7	5.4	1.13	85.1	29.5	9.0
Stoneville 453	1321	40.2	5.0	1.13	84.0	25.8	8.5
Georgia King	1312	43.7	5.4	1.14	85.7	29.6	9.0
Delcot 277	1308	44.2	5.1	1.17	85.6	26.6	8.9
Deltapine 50	1261	38.7	5.0	1.14	85.1	23.3	8.6
Terra C40	1255	40.5	4.9	1.12	85.8	23.7	8.8
Stoneville 907	1236	39.3	5.4	1.14	84.7	26.9	9.1
Arkot 518	1233	39.5	4.7	1.20	84.9	24.9	7.9
Stoneville 506	1233	38.5	5.0	1.15	84.9	25.1	8.5
HyPerformer HS46	1217	40.1	5.1	1.14	84.7	26.0	8.6
Sure-Grow S1001	1201	42.5	4.8	1.13	85.5	28.5	8.8
Terra 207	1186	40.2	4.9	1.12	85.0	27.7	8.8
Stoneville 69132	1179	41.9	4.7	1.05	84.7	26.8	9.2
Stoneville C-130	1166	43.5	5.0	1.15	85.2	27.3	8.2
Chembred 407	1138	41.1	5.0	1.17	85.4	26.6	8.5
Stoneville 324	1135	40.3	4.6	1.16	85.6	29.4	8.9
Miscot 8303-54	1131	38.3	4.9	1.17	86.3	27.4	8.5
Chembred 219	1070	40.5	5.1	1.12	84.7	26.1	8.4
HyPerf.HB91-171B	988	40.7	4.8	1.15	85.1	26.3	8.2
Mean	1271	41.3	5.1	1.14	85.3	26.9	8.8
LSD 0.05	211	2.9	ns	0.04	ns	2.4	0.6
CV (%)	11.8	3.5	4.0	1.6	0.9	4.2	3.2

[1]Planted May 15; preplant fertilization included 70 lb nitrogen (high residual following corn) on March 28, 175 lb 0-18-36 on April 24; irrigated July 11 and 19 and August 1, 7 and 15; defoliated September 27; and harvested October 9.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) using HVI classing.

Table 5. Results of the 1991 Arkansas Cotton Variety Test without irrigation on a mixed Calloway, Loring and Memphis silt loam soil at Marianna, Arkansas[1].

Variety	Lint yield	Lint fract.	Fiber properties[2]				
			Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%		in.	%	g/tex	
Chembred 407	701	41.1	5.1	1.11	84.1	26.9	8.1
Deltapine 5690	675	40.4	4.8	1.16	86.0	26.4	8.4
Arkot 518	670	38.3	5.3	1.14	84.9	28.9	8.9
Stoneville 506	658	40.5	5.3	1.17	84.4	27.9	8.3
Stoneville 69132	627	42.4	5.0	1.11	84.5	27.7	8.5
Chembred 1135	620	43.1	5.0	1.11	84.6	30.9	9.4
Deltapine 5415	614	39.6	4.9	1.17	86.5	28.9	8.7
Deltapine 90	612	40.4	5.0	1.15	84.2	27.4	8.3
Stoneville C-130	602	40.9	5.0	1.15	84.0	26.7	8.4
Coker 320	594	40.6	5.1	1.12	83.9	31.1	9.2
Terra 207	584	41.0	5.0	1.16	86.0	29.3	9.0
Georgia King	583	40.0	4.7	1.16	85.6	26.9	8.6
HyPerf.HB91-171B	581	40.4	5.2	1.12	85.2	30.2	9.1
Stoneville 907	581	40.9	5.1	1.15	85.3	29.9	9.2
Deltapine 20	571	39.7	5.0	1.14	84.8	26.8	8.8
S-35	570	39.9	5.3	1.14	85.2	30.4	8.8
Stoneville 453	565	40.8	4.9	1.16	84.8	30.2	8.9
Stoneville LA887	560	39.2	4.8	1.15	84.8	27.1	8.6
HyPerformer HS23	560	38.6	4.5	1.13	84.0	26.4	8.3
Sure-Grow S1001	557	39.7	4.6	1.17	84.7	27.1	8.1
Miscot 8303-54	549	39.7	4.6	1.15	84.0	27.1	8.0
Chembred 219	541	40.1	4.7	1.10	83.0	26.8	8.4
Terra C40	538	37.5	4.9	1.15	83.2	28.6	8.2
Delcot 277	529	38.8	4.6	1.15	84.6	26.4	8.0
Chembred 333	525	39.2	4.8	1.13	85.3	29.0	9.1
HyPerformer HS46	515	40.3	4.8	1.15	85.6	28.6	8.5
Deltapine 50	499	38.4	4.8	1.16	85.5	30.1	8.7
Stoneville 324	459	37.9	5.0	1.15	85.5	30.0	9.0
DES 119	461	39.1	4.7	1.13	84.7	28.1	8.6
Deltapine 51	456	38.2	4.9	1.15	84.7	27.3	8.3
Mean	572	39.9	4.9	1.15	84.8	28.3	8.6
LSD 0.05	126	3.2	ns	ns	ns	ns	ns
CV (%)	15.7	3.9	6.9	3.3	1.2	8.0	6.6

[1]Planted May 15; fertilization included 70 lb nitrogen on March 28, 175 lb 0-18-36 on April 24; harvested September 20.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) determined using HVI classing.

Table 6. Results of the 1991 Arkansas Cotton Variety Test on Dundee silt loam at Clarkedale, Arkansas[1].

Variety	Lint yield	First pick	Lint fract.	Fiber properties[2]				
				Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%	%		in.	%	g/tex	
Chembred 1135	1439	90.9	37.6	4.6	1.16	85.8	25.1	8.3
Stoneville 907	1344	93.2	38.7	5.1	1.16	85.3	28.0	9.0
Deltapine 5415	1331	85.6	37.8	4.6	1.18	87.1	26.4	9.0
Deltapine 20	1325	87.5	37.9	4.4	1.15	85.9	23.4	8.5
Terra C40	1307	89.1	38.8	4.6	1.14	85.3	22.5	8.4
Stoneville 324	1283	89.1	39.3	4.3	1.18	86.1	28.5	9.1
Chembred 333	1275	89.8	38.9	4.4	1.16	86.1	23.7	8.2
S-35	1220	90.1	38.0	4.5	1.16	86.1	24.0	7.7
Miscot 8303-54	1217	94.3	37.0	4.7	1.21	87.3	28.3	8.8
Sure-Grow S1001	1211	86.3	37.4	4.4	1.18	86.5	27.6	8.7
Chembred 407	1205	85.5	37.0	4.6	1.20	86.6	26.1	8.1
Delcot 277	1199	87.2	39.7	4.8	1.19	86.7	28.4	8.8
Stoneville 453	1179	88.2	37.6	4.6	1.16	86.0	23.9	7.9
Terra 207	1169	89.3	38.3	4.6	1.17	86.9	24.2	8.4
HyPerformer HS46	1167	86.9	38.4	4.2	1.19	86.4	26.9	8.5
Stoneville C-130	1164	88.3	38.4	4.5	1.17	86.9	25.2	8.1
Deltapine 5690	1131	85.2	37.8	4.6	1.19	86.1	27.0	8.0
DES 119	1128	88.5	37.7	4.6	1.20	87.3	24.2	8.6
Stoneville 69132	1125	89.2	38.7	4.0	1.11	86.3	24.6	8.6
Stoneville LA887	1122	86.3	36.4	4.3	1.19	87.0	28.1	8.9
Chembred 219	1118	89.7	39.5	4.6	1.17	86.1	24.6	7.8
Deltapine 51	1117	85.6	36.7	4.3	1.16	85.8	22.1	8.3
HyPerformer HS23	1100	88.7	37.0	4.2	1.18	85.7	26.4	8.3
Deltapine 50	1089	87.1	34.1	4.3	1.17	85.8	23.6	8.4
Deltapine 90	1071	86.7	36.8	4.3	1.19	85.8	29.4	8.8
Coker 320	1059	87.8	37.6	4.8	1.17	87.1	25.8	8.3
Stoneville 506	1039	85.7	35.0	4.3	1.18	85.7	24.5	8.4
Arkot 518	993	91.2	35.2	3.9	1.22	85.9	24.0	7.6
HyPerf.HB91-171B	969	87.6	35.7	4.6	1.19	86.8	26.7	8.6
Georgia King	926	82.0	39.0	4.8	1.18	86.3	27.7	8.5
Mean	1167	88.1	37.6	4.5	1.18	86.3	25.7	8.4
LSD 0.05	259	3.6	2.7	0.5	0.04	ns	2.0	0.7
CV (%)	15.8	2.9	3.5	5.3	1.5	0.7	3.8	3.9

[1]Planted May 15, preplant fertilized on April 23 with 250 lb ammonia nitrate and 60 lb potash, sidedressed on June 21 with 125 lb ammonia nitrate; irrigated July 8, July 24 and August 7; harvested October 3 and 17.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) determined using HVI classing.

Table 7. Results of the 1991 Arkansas Cotton Variety Test on Desha silt loam soil at Rohwer, Arkansas[1].

Variety	Lint yield	First pick	Lint fract.	Fiber properties[2]				
				Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%	%		in.	%	g/tex	
Stoneville LA887	1531	80.8	41.4	4.4	1.20	86.7	27.8	8.7
HyPerformer HS46	1524	80.4	41.1	4.2	1.18	85.4	28.8	8.4
Deltapine 51	1515	69.2	39.3	4.7	1.17	85.9	23.4	8.1
Deltapine 5415	1500	73.0	43.1	4.8	1.17	85.5	26.2	9.2
Stoneville 453	1445	77.4	40.6	4.6	1.15	85.4	24.0	7.9
Delcot 277	1425	77.0	40.0	4.8	1.21	86.5	26.7	8.4
Chembred 333	1420	77.2	39.9	4.4	1.14	84.6	25.7	8.8
Chembred 407	1415	76.3	40.3	4.8	1.15	85.1	27.3	8.2
Georgia King	1391	70.8	40.5	4.5	1.17	86.6	27.5	8.5
Deltapine 5690	1378	79.9	41.6	4.2	1.17	86.3	28.6	8.4
Stoneville 69132	1377	80.4	40.1	4.1	1.11	86.3	25.3	9.0
Sure-Grow S1001	1375	73.8	40.3	4.4	1.16	86.0	27.4	8.8
Chembred 219	1353	76.1	38.9	4.6	1.18	85.5	24.3	7.9
Terra 207	1337	78.7	39.1	4.5	1.16	85.9	25.2	8.5
Deltapine 90	1336	77.4	40.0	4.6	1.17	86.1	29.8	8.5
Stoneville 506	1321	72.1	36.5	4.5	1.18	85.5	24.4	7.8
DES 119	1308	78.8	39.1	4.6	1.20	86.9	25.5	9.2
Deltapine 20	1276	76.5	40.1	4.5	1.13	85.3	24.3	8.6
Miscot 8303-54	1270	85.0	38.4	4.6	1.19	86.3	28.9	8.7
S-35	1253	75.7	39.1	4.3	1.17	85.2	27.0	8.2
Terra C40	1230	75.7	38.9	4.4	1.15	84.5	23.4	8.5
Chembred 1135	1226	73.2	38.6	4.2	1.18	85.7	27.7	8.3
Arkot 518	1210	81.4	39.1	4.4	1.21	85.4	23.1	7.6
Deltapine 50	1191	74.6	36.9	4.3	1.19	86.7	24.1	8.8
Stoneville 324	1181	76.4	37.6	4.3	1.19	86.6	27.6	8.9
Stoneville C-130	1188	72.6	39.9	4.4	1.18	85.8	25.8	7.9
Stoneville 907	1169	82.8	36.7	4.7	1.18	86.6	28.7	9.1
HyPerformer HS23	1155	72.3	39.0	4.1	1.17	85.3	27.3	8.2
Coker 320	1148	66.0	38.3	4.4	1.19	86.7	28.7	8.4
HyPerf.HB91-171B	1043	74.4	38.3	4.3	1.22	86.0	26.5	8.2
Mean	1316	76.2	39.4	4.4	1.14	85.9	26.4	8.5
LSD 0.05	138	6.5	2.1	0.5	0.06	1.4	2.7	0.5
CV (%)	7.4	6.1	2.6	6.4	2.7	0.8	2.7	2.8

[1]Planted May 15; fertilized March 15 with 600 lb of 13-13-13 and June 20 with 50 lb of nitrogen; irrigated July 7, 12 and 19 and August 8; defoliated September 23; and harvested October 3 and 23.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) determined using HVI classing.

Table 8. Average lint yields for 13 cotton varieties tested at six Arkansas locations, 1989-1991.

Variety	Lint yield by location						
	Keiser		Clarke-	Marianna			
	Irr.	No irr.	dale	Irr.	No irr.	Rohwer	Mean
	lb/acre						
Deltapine 20	1061	831	1243	1278	664	1061	1023
Deltapine 51	1109	871	1107	1250	638	1150	1021
Stoneville 453	1084	892	1138	1279	652	1075	1020
DES 119	1050	834	1106	1312	605	1072	997
Terra C40	1014	860	1190	1190	605	964	971
Deltapine 50	992	831	1132	1193	636	960	957
Stoneville 506	983	828	1084	1128	679	1000	950
HyPerformer HS46	898	852	1110	1161	618	1041	947
Deltapine 90	878	837	1082	1179	685	956	936
Coker 130	988	814	1106	1084	641	943	930
Delcot 344	954	759	1116	1105	641	996	928
Coker 320	890	755	1007	1176	646	889	894
Arkot 518	905	682	1038	1038	634	975	876
Mean	985	819	1112	1183	642	1006	958

Table 9. Results of the 1991 Commercial Cotton Strain Tests at Clarkedale and Marianna, Arkansas.

Strain	Lint yield	Lint fract.	Fiber properties[1]				
			Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%		in.	%	g/tex	
Stoneville 9573	1430	43.4	5.3	1.12	85.1	24.9	9.1
DES 119	1397	41.9	5.0	1.15	85.6	25.4	9.6
HyPerformer S55	1330	44.3	4.5	1.19	86.5	26.2	9.5
Ark. 8517-22	1306	40.8	4.5	1.18	86.4	24.3	9.2
Chembred CBX1233	1301	41.0	4.9	1.16	86.1	26.1	9.1
Ark. 8110-27-01	1253	41.1	5.2	1.09	85.5	27.0	9.3
GA 88-186	1219	38.7	4.6	1.25	86.5	27.8	8.7
SureGrow SGX1134	1291	40.2	5.0	1.19	87.6	24.6	9.3
SureGrow SGX1195	1229	41.0	4.9	1.15	86.2	24.1	9.2
Stoneville 453	1215	40.4	4.9	1.16	84.6	23.6	8.5
Ark. 8504-02	1175	38.0	4.4	1.18	85.7	24.9	8.4
Dunn 1850	1148	39.0	5.0	1.15	83.2	27.2	8.9
Germains GC8978	1185	39.5	4.7	1.19	86.2	25.0	9.0
GA 88-586	1181	40.1	4.3	1.24	85.6	27.1	8.6
Germains GC8963	1171	40.1	4.7	1.20	86.4	26.5	9.2
SureGrow SGX1308	1161	38.1	4.7	1.16	83.5	24.8	8.9
GA 88-133	1149	39.7	4.4	1.20	84.6	28.0	8.5
Ark. 8518-02	1141	39.4	5.1	1.18	86.8	25.8	9.2
Ark. 8517-18	1135	42.6	4.5	1.20	86.9	24.0	8.9
Terra 90-292-91E	1123	37.0	4.8	1.19	86.4	25.2	9.2
SureGrow SGX1135	1104	37.7	4.3	1.20	84.9	25.1	8.6
Dunn 2461	1100	38.3	4.7	1.17	87.0	23.8	8.9
Terra 90-365-91F	1076	36.3	4.7	1.19	84.9	26.1	9.0
Ark. 8518-18	1003	39.8	4.8	1.18	87.1	27.7	9.2
Ark. 8304-59-02	986	35.2	4.8	1.24	86.7	25.9	8.7
Ark. 8514-13	986	36.9	4.6	1.17	85.9	25.3	8.6
AgriGenetic Ex.1	866	30.2	4.4	1.12	84.5	28.9	8.8
HyP. HB90-SAL10	881	38.1	4.5	1.15	84.7	28.2	9.5
LSD 0.05	153	2.1	0.3	0.03	1.2	1.2	0.5
Clarkedale	1164	37.2	4.4	1.20	86.6	25.6	8.6
Marianna	1160	41.5	5.0	1.16	84.9	26.1	9.4
LSD 0.05	ns	0.6	0.1	0.01	0.4	0.3	0.1
Mean	1162	39.3	4.7	1.18	85.7	28.8	9.0
C.V. (%)	13.4	3.7	4.5	1.9	1.4	3.7	3.9
Strain X Loc.	*	*	ns	ns	*	ns	ns

*Significant at the 0.05 probability level.

[1]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) determined using HVI classing.

Table 10. Results of the 1991 Commercial Cotton Strain Test at Clarkedale, Arkansas[1].

Strain	Lint yield	First pick	Lint fract.	Fiber properties[2]				
				Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%	%		in.	%	g/tex	
DES 119	1482	90.8	39.8	4.7	1.18	86.2	25.0	9.3
HyPerformer S55	1407	93.0	43.5	4.4	1.19	86.8	26.2	9.3
Ark. 8517-22	1334	91.2	39.4	4.4	1.20	86.8	24.7	8.8
SureGrow SGX1134	1323	89.5	38.8	4.7	1.20	87.6	24.2	8.9
Stoneville 9573	1296	89.3	40.7	4.8	1.15	86.0	24.1	8.6
Chembred CBX1233	1294	88.0	37.9	4.5	1.16	86.4	26.4	9.0
Ark. 8110-27-01	1281	88.1	38.6	4.9	1.09	84.6	26.8	8.8
Terra 90-292-91E	1259	86.2	36.1	4.6	1.21	87.4	25.0	8.9
Germains GC8963	1252	86.9	38.3	4.4	1.21	86.4	25.6	8.7
Ark. 8504-02	1250	84.7	36.4	4.3	1.18	85.7	24.7	7.9
SureGrow SGX1308	1244	91.0	37.0	4.4	1.17	85.9	24.4	8.6
Dunn 1850	1214	83.0	36.1	4.5	1.17	85.7	26.8	8.4
Ark. 8518-02	1194	88.1	37.3	4.8	1.19	87.4	25.8	9.1
GA 88-186	1185	88.7	36.1	4.2	1.28	88.5	26.8	8.2
Germains GC8978	1178	83.8	37.7	4.3	1.20	85.8	25.3	8.7
Stoneville 453	1175	86.4	38.0	4.6	1.18	86.3	23.1	8.3
Ark. 8517-18	1170	90.6	41.5	4.3	1.21	86.8	24.7	8.8
SureGrow SGX1135	1135	90.4	34.8	4.0	1.21	86.9	25.3	8.5
SureGrow SGX1195	1132	91.5	39.5	4.6	1.17	86.5	23.7	8.9
GA 88-586	1125	85.6	38.0	3.8	1.26	87.7	25.9	8.1
Dunn 2461	1080	85.4	35.9	4.6	1.17	86.1	24.2	8.8
Terra 90-365-91F	1049	90.1	34.5	4.2	1.19	86.5	26.5	8.5
GA 88-133	1034	85.7	36.9	4.0	1.22	86.8	27.0	8.0
Ark. 8514-13	955	88.6	33.7	4.2	1.18	85.8	25.1	8.4
AgriGenetic Ex.1	954	84.4	30.7	4.0	1.15	85.7	27.0	8.2
Ark. 8304-59-02	947	86.5	33.2	4.6	1.25	87.8	26.8	8.4
Ark. 8518-18	871	90.0	36.8	4.6	1.21	87.4	26.1	8.5
HyP. HB90-SAL10	771	74.6	33.4	3.8	1.19	85.4	28.2	8.8
Mean	1164	87.6	37.2	4.4	1.20	86.6	25.6	8.6
LSD 0.05	249	4.1	2.6	0.5	0.04	1.5	2.0	0.7
CV (%)	15.2	3.3	3.4	5.5	1.6	0.9	3.9	4.2

[1]Planted May 15; preplant fertilized on April 23 with 250 lb ammonia nitrate and 60 lb potash, sidedressed on June 21 with 125 lb ammonia nitrate; irrigated July 8, July 24 and August 7; harvested October 3 and 17.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) determined using HVI classing.

Table 11. Results of the 1991 Commercial Cotton Strain Test at Marianna, Arkansas[1].

Strain	Lint yield	Lint fract.	Fiber properties[2]				
			Mic.	Len.	Unif.	Str.	Elo.
	lb/acre	%		in.	%	g/tex	
Stoneville 9573	1565	46.2	5.7	1.08	84.3	25.6	9.6
SureGrow SGX1195	1327	42.6	5.0	1.13	86.0	24.4	9.5
DES 119	1311	44.1	5.3	1.10	84.9	26.0	9.9
Chembred CBX1233	1308	44.1	5.3	1.15	85.8	25.7	9.3
Ark. 8517-22	1278	42.3	4.6	1.16	86.0	23.8	9.5
GA 88-133	1265	42.6	4.8	1.17	82.3	29.0	9.0
SureGrow SGX1134	1260	41.7	5.2	1.17	87.6	24.9	9.6
Stoneville 453	1254	42.7	5.2	1.12	82.9	24.1	8.7
GA 88-186	1253	41.3	5.0	1.20	84.5	28.9	9.2
HyPerformer S55	1252	45.0	4.6	1.18	86.1	26.2	9.6
GA 88-586	1237	42.2	4.8	1.20	83.5	28.3	9.1
Ark. 8110-27-01	1226	43.6	5.4	1.08	86.4	27.2	9.8
Germains GC8978	1192	44.1	5.1	1.17	86.6	24.7	9.2
Ark. 8518-18	1135	42.7	5.0	1.15	86.9	29.3	9.9
Dunn 2461	1119	40.8	4.8	1.17	87.9	23.3	9.1
Terra 90-365-91F	1103	38.1	5.0	1.17	83.2	25.7	9.4
Ark. 8517-18	1101	43.7	4.7	1.18	85.6	23.2	9.0
Ark. 8504-02	1100	39.7	4.4	1.17	85.7	25.1	8.9
Germains GC8963	1089	42.6	5.0	1.19	86.3	27.3	9.8
Ark. 8518-02	1087	41.4	5.4	1.16	86.1	25.8	9.3
Dunn 1850	1082	41.8	5.4	1.12	80.6	27.7	9.4
SureGrow SGX1308	1077	39.2	4.9	1.13	81.7	25.1	9.1
SureGrow SGX1135	1072	40.6	4.6	1.17	83.0	24.8	8.6
Ark. 8304-59-02	1025	37.1	4.9	1.22	85.6	24.9	9.0
Ark. 8514-13	1016	40.2	4.9	1.15	86.1	25.4	8.9
HyP. HB90-SAL10	992	42.8	5.2	1.10	83.9	28.3	10.2
Terra 90-292-91E	987	38.0	5.0	1.17	85.3	25.3	9.5
AgriGenetic Ex.1	779	29.7	4.8	1.09	83.4	30.7	9.4
Mean	1160	41.5	5.0	1.16	84.9	26.1	9.4
LSD 0.05	185	3.3	0.4	0.05	ns	1.8	0.7
CV (%)	11.3	3.9	3.7	2.2	3.4	3.4	3.7

[1]Planted May 15; preplant fertilization included 70 lb nitrogen (high residual following corn) on March 28, 175 lb 0-18-36 on April 24; irrigated July 11 and 19 and August 1, 7 and 15; defoliated September 27; and harvested October 9.

[2]Fiber micronaire (Mic.), length (Len.), length uniformity (Unif.), strength (Str.) and elongation (Elo.) determined using HVI classing.

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