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Alabama
COTTON VARIETY
Report 1977

1977 ALABAMA COTTON VARIETY REPORT^{1/}

A Report of the Performance of Cotton Varieties
Tested at Nine Locations in Alabama During 1977

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The Alabama Cotton Variety Test is a continuing evaluation of available cotton varieties from both private companies and state experiment stations. Breeding lines that are likely to be released as varieties are also tested. All tests are conducted on units of the Agricultural Experiment Station by Experiment Station personnel. All phases of culture are as generally recommended by Auburn University to farmers. Every effort is made to test the varieties and present the data in an unbiased manner.

Experimental Design and Plot Size

A randomized block design in four replications was used at each location. Length of plots at different locations varied from 34 to 142 feet. Plots were two-row at Prattville and single row at the other locations.

Seasonal Conditions

All tests were planted within the optimum planting period and satisfactory stands were established at all locations without replanting. Southern and central locations, Brewton, Monroeville, Headland, Prattville, Tallassee, and Shorter, were drier than normal during May and June but received near normal rainfall for the remainder of the season. Northern sites, Winfield, Belle Mina, and Crossville, had near normal rainfall through June but were dry during July and August.

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Boll weevil populations were at a very low level throughout the season at all test locations. Boll worms (Heliothis spp.) were prevalent throughout the State during August and September and caused extensive damage. Fall armyworms also were abundant and destructive especially in the central and southern areas.

Boll rot was severe in central and southern tests due to the warm and humid conditions during September and October.

The cotton variety test previously planted at Auburn has been discontinued. Hereafter, this central Alabama test will be located at the new E. V. Smith Research Center near Shorter, Alabama.

Data from the 1977 tests at Tallassee, Headland, and Shorter are not included in the report because of excessive within-test variation and inconsistent varietal performance. For informational purposes, the most recent results from these sites are given.

Explanation of Data

Yield of Seed Cotton: Tests at Prattville, Brewton, and Monroeville were harvested by a mechanical spindle picker. Tests at Winfield, Belle Mina, and Crossville were harvested by hand. Average weight of seed cotton per acre was determined for each variety at each location.

Lint Percentage: A sample of seed cotton from each variety at each location was taken at harvest and ginned on a 10-saw gin. Lint percentage was calculated by dividing weight of lint by weight of seed cotton.

Yield of Lint: Lint yield was determined by multiplying the lint percentage by yield of seed cotton.

Fiber Properties: Measurements of fiber properties are not available at this

time. A supplement to this report will be made when this information is available.

Earliness: Where more than one harvest was made, earliness is reported as the percentage of the total yield harvested at the first picking.

Fusarium Wilt: Reaction of varieties to Fusarium wilt was evaluated at the Plant Breeding Unit, Tallassee, by growing the varieties in fields with a high natural incidence of the Fusarium wilt-root-knot nematode complex. Severity of the disease varies from year to year and also within the experimental area in the same year. Therefore, several years' data are necessary to realistically characterize a variety's wilt reaction. These data are summarized in table 7. Auburn 56 is the only variety tested each year that has been highly resistant. Stoneville 213 and Hancock have consistently shown a high incidence of wilt. All other varieties that have been tested for at least 3 years have some tolerance to Fusarium wilt.

New and Experimental Varieties

Deltapine 26, first tested in Alabama in 1976, is a selection from one of the original lines comprising Deltapine 25. Deltapine 26 is similar to Deltapine 25 and also has high yield and good wilt resistance. Stoneville 731N is a nectariless variety. In addition to having no leaf or floral nectaries, this variety is somewhat earlier than the other Stoneville varieties. Lint characteristics are similar to the familiar Stoneville 213. Deltapine 61 is a selection from Deltapine 16 and in general is quite similar to Deltapine 16. Brycot 4 and Vail 7 have been in test since 1976. Both appeared to be earlier than other varieties in the test. McNair 220 was available to a limited extent in 1977. We have tested it statewide since 1976. It is early and appears to have good Fusarium wilt resistance. New Rex was selected from Rex

Smoothleaf-66 and released by the Arkansas Agricultural Experiment Station. Results from its first year of testing in Alabama, 1977, indicate it is best adapted to the northern areas of the State. DES 24 is a release by the Mississippi Agricultural Experiment Station and has been previously tested under the experimental designation DES-06-020-24. Data from 1976 and 1977 indicate that DES-24 is well adapted to Alabama and has a high level of resistance to Fusarium wilt. Coker 3114, Coker 315, Coker 420-511, PD 9241, and McNair 3033 are experimental lines included for preliminary testing only and are not released varieties. Acala 1517-70 and Paymaster 909 are varieties adapted to the western areas of cotton production and are included in certain Alabama variety tests as national standard varieties. These tests are part of a national cooperative variety testing program. Neither variety is well adapted to Alabama conditions.

Statistical Analysis

Appropriate analyses of the yield data were made. For each location, the variability of the test was calculated and expressed as a percentage of the test mean, coefficient of variation (C.V.). An indication of the difference between variety averages necessary to be a real difference is given, Least Significant Difference (L.S.D. .05).

Table 1. Performance of Cotton Varieties in Northern Alabama, 1977

Variety	Yield of lint per acre				Av. lint percentage Pct.	Percent earliness	
	Crossville Lb.	Belle Mina Lb.	Winfield Lb.	Av. Lb.		Belle Mina Pct.	Winfield Pct.
Stoneville 731N	341	770	528	546	40	84	94
Hancock	381	530	664	525	38	92	95
New Rex	420	702	429	517	40	90	88
Stoneville 603	344	687	499	510	40	93	89
Coker 310	392	632	494	506	40	92	93
McNair 220	464	514	524	500	38	91	95
Deltapine 26	298	733	470	500	42	85	88
Coker 3114	362	610	518	496	41	89	94
Delcot 277	399	665	417	494	41	89	92
Stoneville 213	322	683	472	492	38	89	91
Vail 7	352	602	521	492	40	86	90
Deltapine 16	387	605	468	487	39	83	90
DES 24	434	613	412	486	40	90	91
Coker 315	438	514	484	479	40	89	86
Deltapine 61	439	606	383	476	40	83	80
Coker 420-511	463	514	444	474	38	88	84
McNair 612	367	479	525	457	41	87	93
Coker 304	362	551	427	446	40	88	91
Auburn 56	329	501	486	438	39	86	93
Deltapine 55	354	606	348	436	40	82	89
Dixie King III	326	542	411	426	37	88	93
The following varieties were not tested at all locations							
Coker 417		623	521		37	88	94
Brycot 4		633	397		37	86	88
McNair 511		335	409		36	72	84
McNair 3033	475				43		
PD 9241	349				43		
Acala 1517-70	246				41		
Paymaster 909	212				43		
L.S.D. .05	57	69	139				
C.V.%	10.9	8.2	21.1				

Table 2. Performance of Cotton Varieties in Northern Alabama,
Two-year Average, 1976-77

Variety	Yield of lint per acre				Average lint percentage Pct.
	Crossville*	Belle Mina	Winfield	Av.	
	Lb.	Lb.	Lb.	Lb.	
Vail 7	352	627	410	518	38
Hancock	381	488	512	500	38
Stoneville 603	344	595	391	493	38
Brycot 4	---	596	389	493	38
Coker 310	392	505	443	474	40
Deltapine 16	387	515	423	469	38
Stoneville 213	322	513	394	454	38
Stoneville 731N	341	477	430	454	39
Deltapine 61	439	543	354	449	38
Deltapine 26	298	524	368	446	42
DES 24	434	536	354	445	39
Coker 417	---	442	411	426	38
Auburn 56	329	425	428	426	37
Delcot 277	399	459	383	421	40
McNair 220	464	442	382	412	38
Coker 304	362	379	388	383	40
Deltapine 55	354	445	303	374	39
McNair 612	367	379	365	372	41
McNair 511	---	245	321	283	38

* 1977 data only. Data not included in averages.

Table 3. Performance of Cotton Varieties in Northern Alabama,
Three-year Average, 1975-1977

Variety	Yield of lint per acre				Average lint percentage Pct.
	Crossville*	Belle Mina	Winfield	Av.	
	Lb.	Lb.	Lb.	Lb.	
Hancock	381	556	486	521	39
Stoneville 603	344	610	404	507	39
Coker 310	392	562	446	504	41
Deltapine 16	387	543	450	496	39
Stoneville 213	322	523	444	483	39
Delcot 277	399	533	422	477	40
Deltapine 55	354	567	364	465	41
Coker 417	---	493	430	462	39
Auburn 56	329	469	434	452	37
Coker 304	362	462	440	451	41
McNair 0612	368	424	436	430	41
McNair 511	---	290	345	318	38

* 1977 data only. Data not included in averages.

Table 4. Performance of Cotton Varieties in Southern Alabama, 1977

Variety	Yield of lint per acre				Percent earliness*	Av. lint percentage
	Brewton	Monroe-ville	Pratt-ville	Av.		
	Lb.	Lb.	Lb.	Lb.	Pct.	Pct.
Hancock	913	823	658	798	78	41
Deltapine 61	552	858	776	729	71	38
Deltapine 26	539	861	782	727	69	40
DES 24	549	772	767	696	77	39
Delcot 277	694	717	673	695	82	39
McNair 220	517	811	754	694	79	39
Stoneville 603	640	729	699	689	77	40
Vail 7	628	752	684	688	70	38
Dixie King III	532	776	750	686	67	41
Coker 417	537	849	672	686	82	37
Coker 420-511	551	784	659	665	77	40
Stoneville 731N	463	783	745	663	78	38
Auburn 56	674	725	585	661	67	36
Coker 315	441	822	708	657	76	39
Brycot 4	501	709	729	646	68	38
Stoneville 213	492	763	673	643	76	36
Deltapine 55	566	647	713	642	75	38
Coker 310	585	700	631	639	83	37
McNair 511	625	785	490	633	65	36
McNair 612	460	705	681	615	71	38
Coker 304	426	760	658	615	73	42
Deltapine 16	478	720	618	605	70	37
New Rex	611	532	570	571	79	34
Coker 3114	379	641	663	561	71	40
L.S.D.	117	103	80			
C.V. % .05	14.9	9.7	8.3			

* Prattville location only.

Table 5. Performance of Cotton Varieties in Southern Alabama,
Two-year Average, 1976-77

Variety	Yield of lint per acre					Av. Lb.	Av. lint percentage Pct.
	Brew- ton Lb.	Head- land* Lb.	Monroe- ville Lb.	Pratt- ville Lb.	Tallas- see** Lb.		
Hancock	1116	579	766	780	1009	887	41
Deltapine 61	888	---	839	891	968	873	39
McNair 220	948	---	806	823	829	859	40
Deltapine 26	856	---	850	857	1076	854	41
DES 24	937	---	765	833	865	845	41
Delcot 277	981	424	711	750	876	814	40
Vail 7	871	---	756	815	991	814	39
McNair 612	908	335	741	782	628	810	41
Coker 304	900	485	742	775	860	806	44
McNair 511	938	267	771	693	960	801	38
Stoneville 603	884	475	729	786	955	800	40
Auburn 56	922	437	711	751	897	795	37
Coker 417	860	430	761	761	792	794	39
Coker 310	888	546	689	800	753	792	40
Deltapine 55	867	619	716	792	925	792	40
Brycot 4	793	---	717	822	968	777	39
Stoneville 731N	800	---	788	744	809	777	40
Stoneville 213	788	538	766	767	914	774	38
Deltapine 16	833	437	710	761	910	768	38

* 1975 data only. Data not included in averages.

** 1976 data only. Data not included in averages.

Table 6. Performance of Cotton Varieties in Southern Alabama,
Three-year Average, 1975-77

Variety	Yield of lint per acre					Av. Lb.	Av. lint percentage Pct.
	Brew- ton Lb.	Head- land Lb.	Monroe- ville Lb.	Pratt- ville Lb.	Tallas- see** Lb.		
Hancock	972	579	694	793	789	820	41
Deltapine 55	801	619	678	806	640	762	40
McNair 612	833	335	662	787	557	761	42
Delcot 277	864	424	648	747	684	753	41
McNair 511	845	267	682	731	769	753	39
Coker 304	842	485	680	731	623	751	43
Stoneville 603	769	475	684	781	727	744	40
Auburn 56	851	437	636	735	687	740	38
Coker 417	795	430	675	751	615	740	40
Deltapine 16	752	437	667	799	774	739	39
Stoneville 213	758	538	684	761	695	734	39
Coker 310	811	546	615	777	596	734	41

* 1975 data only. Data not included in averages.

** 1975-1976 data only. Data not included in averages.

Table 7. Percentage of Plants Showing Symptoms of Fusarium Wilt^{1/}

Variety	1977	Average wilt percentage									
		2-yr 1976-77	3-yr 1975-77	4-yr 1974-77	5-yr 1973-77	6-yr 1972-77	7-yr 1971-77	8-yr 1970-77	9-yr 1969-77	10-yr 1968-77	11-yr 1967-77
Auburn 56	15.7	9.6	14.3	19.5	21.5	19.5	19.3	22.6	20.9	20.6	18.8
Deltapine 16	15.2	16.5	16.3	17.8	17.6	18.9	24.5	31.9	31.7	31.8	30.6
Stoneville 213	44.3	30.4	36.8	37.5	45.3	42.9	44.2	50.6	54.3	58.7	57.1
Coker 310	20.0	15.8	20.7	20.5	25.7	23.1	29.9	26.1	24.4		
Coker 417	29.5	17.6	20.0	21.2	24.2	25.2	28.6	31.3	33.7		
Stoneville 603	25.8	15.3	13.6	19.1	18.5	18.9	23.2	25.2	24.2		
Delcot 277	15.8	14.5	16.4	17.2	17.9	16.8	19.8	25.9			
McNair 511	18.7	15.8	17.0	19.7	21.6	20.9	23.2				
Coker 304	17.8	13.1	15.1	19.6	23.2	22.6					
Deltapine 55	28.3	18.5	20.8	23.3	25.4	24.0					
Dixie King III	22.3	14.8	19.8	17.0	22.0						
Hancock	54.8	42.8	46.7	45.5	53.2						
McNair 612	29.0	18.3	19.4	21.4	27.6						
Brycot 4	33.5	32.2									
Deltapine 26	4.0	3.0									
Deltapine 61	14.8	17.0									
DES 24	9.0	8.5									
McNair 220	16.5	11.0									
PD 9241	50.3	40.1									
Stoneville 731N	48.2	41.8									
Vail 7	38.0	33.8									
Coker 315	26.3										
Coker 420-511	24.2										
Coker 3114	26.3										
New Rex	24.0										

^{1/} Data were taken from a field severely infested with the Fusarium wilt fungus and root-knot nematodes, Plant Breeding Unit, Tallassee, Alabama.

Source of Seed for the 1977 Cotton Variety Test

Variety	Seed source
Auburn 56	Auburn University (Ala.) Agricultural Experiment Station Auburn, AL 36830
Deltapine 16 Deltapine 55 Deltapine 26 Deltapine 61	Delta and Pine Land Co. Scott, MS 38772
Stoneville 213 Stoneville 603 Stoneville 731N Dixie King III	Stoneville Pedigreed Seed Co. Stoneville, MS 38776
Coker 310 Coker 417 Coker 304 Coker 315 Coker 420-511 Coker 3114	Coker's Pedigreed Seed Co. Hartsville, SC 29550
Delcot 277	Delta Center Portageville, MO 63873
McNair 511 McNair 220 McNair 612	McNair Seed Co. Laurinburg, NC 28532
Hancock	West Tennessee Experiment Station Jackson, TN 38301
Bryco 4 Vail 7	Bryco Jonesboro, AR 72401
DES 24	Delta Branch Experiment Station Stoneville, MS 38776
PD 9241	Pee Dee Experiment Station Florence, SC 29501
New Rex	Cotton Branch Experiment Station Marianna, AR 72360

*Information contained
herein is available to
all regardless of race,
color, or national origin.*