

Alabama Cotton Variety Report

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1976 ALABAMA COTTON VARIETY REPORT^{1/}

A Report of the Performance of Cotton Varieties
Tested at Nine Locations in Alabama During 1976

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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 Auburn, Brewton, Monroeville, and Prattville and single row at Winfield, Belle Mina, and Tallassee.

Seasonal Conditions

Adverse weather necessitated replanting the tests at Monroeville and Winfield and replanting skips at Auburn. At Headland, germination and emergence were satisfactory but the stand was subsequently lost to seedling diseases too late for replanting. Growing conditions were generally good in southern and central locations but temperatures were lower than normal in northern Alabama. Data from the test at Crossville, on Sand Mountain, are not reported because of poor stands, poor fruiting, and extremely inconsistent varietal performance. Up to 50% of the bolls were immature or mature but not opened at the first freeze at Winfield and Belle Mina in northern Alabama.

^{1/} February 1977

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Explanation of Data

Yield of Seed Cotton: Tests at Prattville, Tallassee, Belle Mina, Brewton, and Monroeville were harvested by a mechanical spindle picker. Tests at Winfield and Auburn 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 Fusarium wilt. Results of these tests vary from year to year and also from different areas of the field 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. Judgment of resistance should be made on as many years' data as available.

New and Experimental Varieties

Deltapine 26, first tested in Alabama in 1976, is a selection from one of the original lines comprising Deltapine 25. In general it should be similar to Deltapine 25 which is being phased out. Stoneville 731N is a new nectariless variety. In addition to having no leaf or floral nectaries, this variety is somewhat earlier to mature 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 are privately developed varieties. We have had these varieties in test only in 1976. Both appeared earlier to mature than other varieties in the test. Seed of Vail 7 will not be generally available for 1977 but there will be a limited supply of Brycot 4. McNair 220 is a newly released variety. We have tested it state-wide for the first time in 1976. It is early and appears to have good Fusarium wilt resistance. DES 06-020-24, Coker 530, Coker 1104, and P.D. 9241 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 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 is 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).

Acknowledgment

Appreciation is expressed to Dr. A. J. Kappelman, Jr., for Fusarium wilt ratings, to superintendents J. K. Boseck, J. T. Eason, Robert Moore, J. G. Starling, F. T. Glaze, W. E. Brown, and J. W. Langford for growing and harvesting the variety tests, and to Research Data Analysis for assistance in summarizing the data.

Table 1. Performance of Cotton Varieties in Northern Alabama, 1976

Variety	Yield of lint per acre			Earliness*	Lint percentage		
	Belle Mina	Winfield	Av.		Belle Mina	Winfield	Av.
	Lb.	Lb.	Lb.		Pct.	Pct.	Pct.
Vail 7	652	298	475	59	39	38	39
Brycot 4	559	382	471	56	39	39	39
Deltapine 61	479	326	403	60	39	40	40
Hancock	446	359	402	58	40	42	41
Deltapine 16	424	378	401	45	38	39	39
Stoneville 603	503	283	393	60	39	39	39
Coker 310	377	392	385	63	40	44	42
DES 06-020-24	458	296	377	59	39	41	40
Auburn 56	349	369	359	48	36	38	37
Coker 201	351	332	341	57	41	43	42
Stoneville 213	344	317	330	42	38	40	39
McNair 220	370	241	306	57	39	40	40
Delcot 277	253	348	300	54	39	41	40
Deltapine 26	314	266	290	51	39	44	41
Coker 1104	300	279	289	59	39	42	40
Coker 417	261	301	281	52	39	41	40
Coker 304	207	349	278	58	39	43	41
Deltapine 55	285	259	272	46	40	42	41
Stoneville 731N	185	332	259	48	38	39	39
McNair 612	280	204	242	56	40	43	42
Dixie King III	177	256	217	38	38	40	39
McNair 511	154	233	194	47	39	40	40
L.S.D.	147	116					
C.V. % .05	29.6	26.6					

*Belle Mina data only.

Table 2. Performance of Cotton Varieties in Northern Alabama,
Two-year Average, 1975-76

Variety	Yield of lint per acre				Average lint percentage Pct.
	Belle Mina Lb.	Crossville* Lb.	Winfield Lb.	Av. Lb.	
Hancock	569	573	396	483	41
Deltapine 16	511	507	441	476	40
Coker 310	526	468	422	474	42
Stoneville 603	571	418	357	464	39
Deltapine 55	547	329	372	459	42
Delcot 277	467	639	424	446	40
Stoneville 213	443	417	429	436	40
Coker 304	418	514	446	432	42
Coker 1104	462	564	402	432	41
Auburn 56	454	433	408	431	38
Coker 201	421	499	420	421	42
Coker 417	428	383	386	407	40
McNair 612	396	529	391	393	42
Dixie King III	374	433	381	378	40
McNair 511	268	617	314	291	39

*1974 data only. Data not included in averages.

Table 3. Performance of Cotton Varieties in Northern Alabama,
Three-year Average, 1974-1976

Variety	Yield of lint per acre				Average lint percentage Pct.
	Belle Mina Lb.	Crossville* Lb.	Winfield Lb.	Av. Lb.	
Hancock	634	573	424	529	41
Delcot 277	589	639	456	523	40
Deltapine 55	630	329	414	522	42
Deltapine 16	558	507	426	492	40
Coker 1104	541	564	413	477	40
Coker 201	506	499	445	475	42
Coker 304	483	514	458	471	42
Coker 310	525	468	412	469	42
Stoneville 213	516	417	416	466	40
Stoneville 603	547	418	370	458	39
Auburn 45	469	433	435	452	38
Coker 417	499	383	394	447	40
Dixie King III	425	433	412	419	40
McNair 612	421	529	412	416	42
McNair 511	300	617	355	328	40

*1974 data only. Data not included in averages.

Table 4. Performance of Cotton Varieties in Southern Alabama, 1976

Variety	Yield of lint per acre						Earliness*	Lint percentage					
	Au- burn	Brew- ton	Monroe- ville	Pratt- ville	Tallas- see	Av.		Au- burn	Brew- ton	Monroe- ville	Pratt- ville	Tallas- see	Av.
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	
Deltapine 61	544	1223	819	1006	968	912	78	40	41	41	41	43	41
Deltapine 26	481	1173	839	932	1076	900	79	42	43	41	43	45	43
Hancock	518	1320	709	902	1009	892	84	41	42	40	42	43	42
McNair 220	548	1379	801	892	829	890	82	40	41	41	41	41	41
Coker 304	508	1374	724	891	860	871	76	42	48	42	46	44	45
DES 06-020-24	498	1324	758	899	865	869	87	40	43	41	41	43	42
McNair 511	479	1251	758	896	960	869	72	41	42	40	40	43	41
Vail 7	525	1113	760	946	991	867	84	41	40	39	42	43	41
Coker 201	546	1234	713	893	921	861	79	42	46	42	43	44	43
Brycot 4	568	1084	726	916	968	852	79	41	40	39	40	42	41
Deltapine 55	501	1168	785	872	925	850	78	42	44	39	43	44	42
Deltapine 16	532	1187	699	904	910	847	77	40	41	37	41	43	40
Auburn 56	543	1171	697	916	897	845	76	38	41	37	39	40	39
Stoneville603	531	1128	728	873	955	843	85	40	42	39	42	43	41
Coker 1104	579	1240	708	817	841	837	73	40	44	41	42	42	42
McNair 612	537	1357	776	883	628	836	80	42	48	42	43	46	44
Stoneville 213	540	1084	769	861	914	833	81	40	41	39	41	42	41
Delcot 277	470	1268	704	827	876	829	85	39	44	40	42	42	41
Coker 310	474	1191	679	968	753	813	77	40	43	42	46	44	43
Dixie King III	467	1191	792	860	746	811	68	40	42	40	42	41	41
Coker 417	486	1183	672	851	792	797	73	39	43	40	41	43	41
Stoneville 731N	378	1137	794	742	809	772	79	42	46	41	40	43	42
(The following varieties were not tested at all locations)													
PD 9241	490							40					
Paymaster 909	397							39					
Acala 1517-70	262							37					
L.S.D.	97	159	77	95	199								
C.V. % ^{.05}	13.9	9.2	7.3	7.5	15.9								

*Prattville location only.

Table 5. Performance of Cotton Varieties in Southern Alabama,
Two-year Average, 1975-76

Variety	Yield of lint per acre							Av. lint percentage Pct.
	Au- burn* Lb.	Brew- ton Lb.	Head- land** Lb.	Monroe- ville Lb.	Pratt- ville Lb.	Tallas- see Lb.	Av. Lb.	
Hancock	518	1001	579	629	861	789	820	42
McNair 511	479	956	267	631	852	769	802	41
Deltapine 16	532	889	437	640	889	774	798	42
Deltapine 55	501	918	619	693	853	640	776	43
Coker 1104	579	970	490	634	821	672	774	42
Coker 304	508	1049	485	640	768	623	770	43
Coker 201	546	929	614	605	830	709	768	43
McNair 612	537	1020	335	640	840	557	764	44
Dixie King III	467	918	489	694	835	607	764	41
Stoneville 603	531	833	475	661	822	727	761	40
Stoneville 213	540	891	538	645	805	695	759	41
Delcot 277	470	948	424	614	784	684	758	42
Auburn 56	543	940	437	591	809	687	757	39
Coker 310	474	924	546	573	850	596	736	43
Coker 417	486	924	430	589	790	615	730	42

*1976 data only. Data not included in averages.

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

Table 6. Performance of Cotton Varieties in Southern Alabama,
Three-year Average, 1974-76

Variety	Yield of lint per acre						Av. lint percentage Pct.	
	Au- burn* Lb.	Brew- ton Lb.	Head- land** Lb.	Monroe- ville Lb.	Pratt- ville Lb.	Tallas- see Lb.		
McNair 511	574	1217	528	614	963	750	886	41
Hancock	518	1205	649	650	924	687	866	42
Delcot 277	550	1114	575	640	908	724	846	42
Deltapine 16	573	1026	575	654	958	735	843	42
Dixie King III	565	1125	616	715	927	581	837	41
Coker 1104	587	1084	649	653	907	663	827	42
Stoneville 213	596	1047	655	636	917	700	825	41
McNair 612	588	1127	644	636	935	574	818	44
Coker 201	591	1056	876	632	913	652	813	43
Deltapine 55	520	1005	728	663	936	636	810	43
Coker 310	562	1068	731	603	962	592	806	43
Coker 417	578	1092	628	612	918	588	802	42
Stoneville 603	574	964	596	629	901	675	792	41
Auburn 56	578	1039	687	583	859	679	790	39

*1974-1976 data only. Data not included in averages.

**1974-1975 data only. Data not included in averages.

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

Variety	1976	Average wilt percentage								
		<u>2-yr</u> 1975-76	<u>3-yr</u> 1974-76	<u>4-yr</u> 1973-76	<u>5-yr</u> 1972-76	<u>6-yr</u> 1971-76	<u>7-yr</u> 1970-76	<u>8-yr</u> 1969-76	<u>9-yr</u> 1968-76	<u>10-yr</u> 1967-76
Auburn 56	3.4	13.6	20.7	22.9	20.3	19.9	23.6	21.6	21.1	19.1
Coker 201	4.8	28.7	24.7	19.6	18.9	24.4	31.4	32.2	28.6	35.2
Deltapine 16	17.8	16.9	18.6	18.2	19.6	26.1	34.3	33.8	33.6	32.1
Stoneville 213	16.4	33.1	35.2	45.5	42.6	44.2	51.5	55.6	60.3	58.4
Coker 310	11.6	21.1	20.6	27.1	23.7	31.5	27.0	24.9		
Coker 417	6.0	15.3	18.4	22.9	24.3	28.4	31.5	34.2		
Stoneville 603	4.7	7.5	16.8	16.7	17.5	22.8	25.1	24.0		
Delcot 277	13.1	16.7	17.6	18.4	17.0	20.5	27.3			
McNair 511	12.9	16.1	20.0	22.3	21.3	23.9				
Coker 304	8.4	13.8	20.2	24.6	23.6					
Deltapine 55	8.6	17.1	21.6	24.7	23.1					
Dixie King III	7.2	18.5	15.2	21.9						
Hancock	30.7	42.6	42.4	52.8						
McNair 612	7.5	14.6	18.9	27.3						
Coker 1104	17.8	26.8	22.9							
Brycot 4	30.9									
Deltapine 26	2.0									
Deltapine 61	19.2									
DES 06-020-24	8.0									
McNair 220	5.4									
PD 9241	29.9									
Stoneville 731N	35.3									
Vail 7	29.6									

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



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