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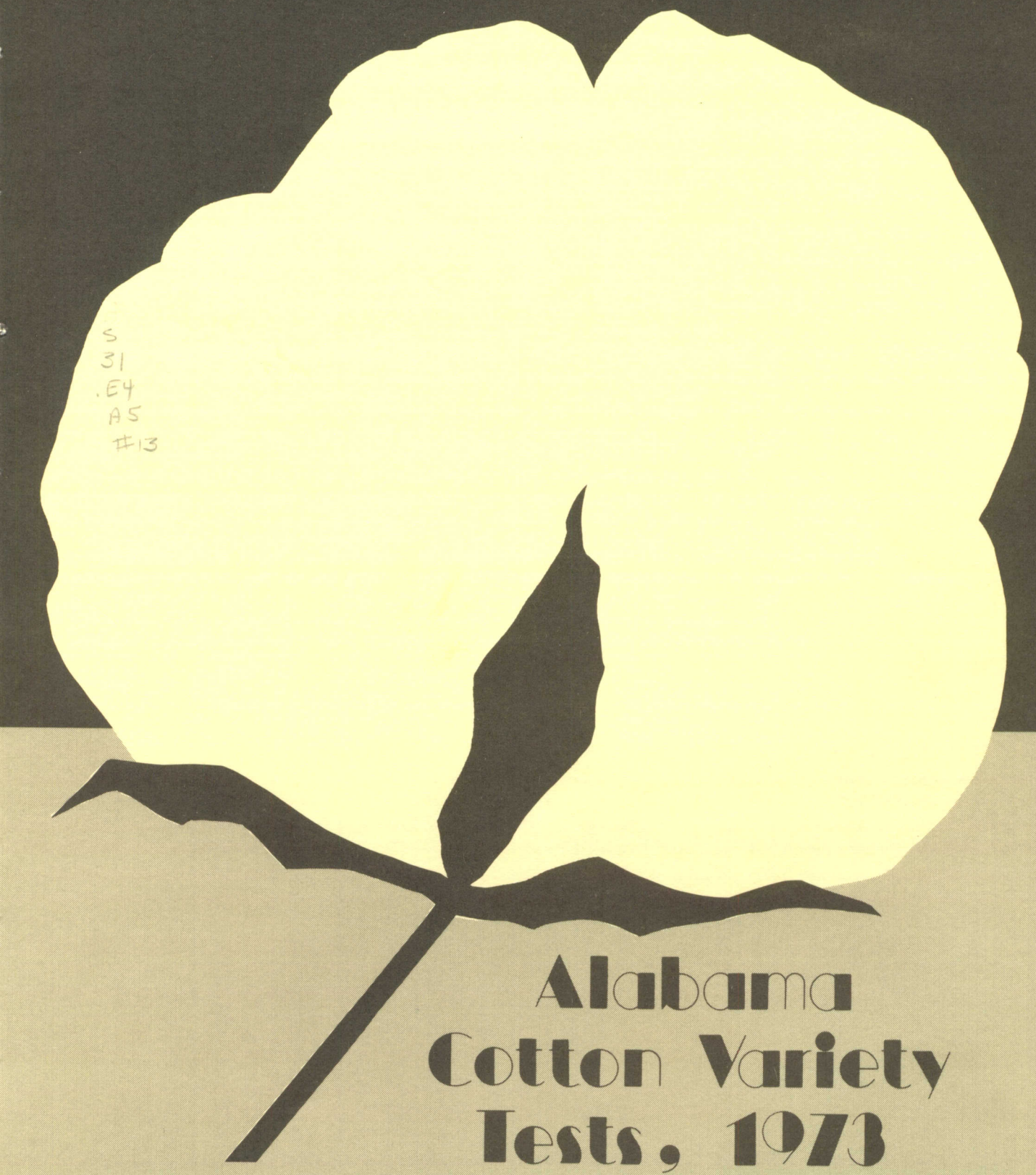

Alabama Cotton Variety Tests, 1973

AGRICULTURAL EXPERIMENT STATION / AUBURN UNIVERSITY
R. Dennis Rouse, Director
Auburn, Alabama

1973 ALABAMA COTTON VARIETY REPORT[1/]

A Report of the Performance of Cotton Varieties
Tested at Nine Locations in Alabama During 1973

Wiley C. Johnson[2/]

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 the Experiment Station to farmers. Every effort is made to test the varieties and present the data in an unbiased manner.

Experimental Design

A randomized block design in four replications was used at each of nine locations. Length of plots at different locations varied from 40 to 138 feet. All plots were single-row except at Prattville and Auburn where 2-row plots were used.

Seasonal Conditions for the Tests

In general, early weather conditions were adequate for successful establishment and stands were established within the optimum time period. However at the Sand Mountain Substation, Crossville, Alabama, unusually cold, wet, and windy conditions necessitated replanting and caused irregular stands and erratic early growth. Rainfall was near normal through midseason. Some locations experienced drougth during the latter part of the season. Cotton

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[1/] February 1974

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was extremely late fruiting in northern Alabama and numerous plants had abnormal growth. This atypical growth and fruiting was probably caused by late planting and damage from an unusually high population of tarnished plant bugs. Ideal weather during August and September allowed this late crop to mature.

Explanation of Data

Yield of Seed Cotton: Tests at Prattville, Tallassee, Belle Mina, Crossville, Brewton, Monroeville, and Auburn were harvested by a mechanical spindle picker. The tests at Winfield and Headland 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 of each variety from 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.

Field Losses: Following machine harvest of the tests at Auburn and Prattville, the cotton fallen on the ground was picked up, dried, cleaned of soil, and weighed. Lint losses were calculated and given both as pounds per acre and as a percentage of total yield for each variety. The losses at Auburn were excessive because of rain and high winds just before harvest.

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.

Fusarium Wilt: Reaction of varieties to Fusarium wilt is evaluated at the Plant Breeding Unit, Tallassee by growing the varieties in fields with a high natural incidence of Fusarium wilt. Results of such tests vary from year to year and also from different areas of the field in the same year. Therefore, it is necessary to have several year's data to realistically characterize a variety's wilt reaction. Data are summarized in Table 8. Auburn 56 is the only variety that has been highly resistant every year tested. Several other varieties appear to have resistance but are either inconsistent in response or have been tested for a relatively short period. These are McNair 511, Deltapine 25, Delcott 277, Rex Smoothleaf 66, Stoneville 603, and Coker 310.

Stoneville 213 and Hancock have consistently shown a large amount of wilt symptoms and damage. Hancock was omitted in 1972 and could not be averaged, but in 1973 and years prior to 1972 it was extremely susceptible. All other varieties that have been tested for at least 3 years have a degree of tolerance to Fusarium wilt. Judgment of resistance should not be made on a single year's data.

New and Experimental Varieties

Acala 1517-70 and Lockett 4789A are commercial varieties adapted to California and the Southwest, respectively. They are not suitable for growth in Alabama and were included in some of our tests as national standard varieties. Coker 312 is a new release that was developed for use in the Texas high plains area. Dixie King III is in its second year of release and was previously tested at Dixie King 375. It has replaced Dixie King II. McNair 612 has just been released. Seed will not generally be available until 1975. Promising experimental strains tested but not released include Coker 220, Coker 8304, Deltapine 652, Deltapine 5916-65, A6-668-BE, A6-741-ADE, and McNair 71418.

Acknowledgement

I wish to express my appreciation to Dr. A. J. Kappelman, Jr., for Fusarium wilt ratings, to superintendents J. K. Boseck, S. E. Gissendanner (retired), Robert Moore, J. G. Starling, F. T. Glaze, Emmett Carden, 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, 1973

Variety	Yield of lint per acre				Lint percentage			
	Belle Mina	Cross-ville	Win-field	Av.	Belle Mina	Cross-ville	Win-field	Av.
	Lb.	Lb.	Lb.	Lb.	Pct.	Pct.	Pct.	Pct.
Stoneville 603	902	456	615	658	42	41	41	41
Hancock	708	507	582	599	45	43	42	43
Delcott 277	799	379	489	556	44	41	42	42
Dixie King III	709	515	435	553	44	43	42	43
Auburn 56	630	447	550	542	42	40	40	41
Stoneville 213	812	339	474	542	43	42	42	42
Coker 220	749	391	480	540	46	42	44	44
Coker 8304	656	426	517	533	48	44	45	46
Deltapine 652	689	305	560	518	46	44	45	45
McNair 0612	626	434	486	515	48	44	45	46
Deltapine 16	702	357	440	500	44	43	42	43
Coker 310	701	403	352	485	47	43	45	45
Deltapine 25	680	335	421	478	44	43	43	43
Coker 201	610	383	385	459	46	44	44	45
McNair 210	544	387	436	456	41	40	40	40
Coker 417	534	468	297	433	43	42	42	42
Deltapine 45A	642	266	370	426	44	42	42	42
Hy-Bee 100A	578	356	277	404	43	43	42	43
McNair 511	431	325	311	355	43	39	42	41
Lockett 4789-A	371	323	256	317	42	39	41	41
(Following varieties were not tested at all locations)								
A6-668-BE	557				46			
A6-741-ADE	336				44			
Acala 1517-70		255				39		
Coker 312		445				43		
DPL 5916-65		373				44		
Hy-Bee 200A		327	328			42	42	
Rex Smoothleaf 66		370	339			41	41	

Table 2. Performance of Cotton Varieties in Northern Alabama, Two-year Average, 1972-1973

Variety	Yield of lint per acre				Lint percentage			
	Belle Mina	Cross-ville	Win-field	Av.	Belle Mina	Cross-ville	Win-field	Av.
	Lb.	Lb.	Lb.	Lb.	Pct.	Pct.	Pct.	Pct.
Hancock	1,001	517	740	753	44	44	44	44
Stoneville 603	1,024	429	720	724	41	41	42	41
Stoneville 213	1,015	391	708	705	42	43	43	43
Delcott 277	993	390	687	690	43	42	43	42
Deltapine 652	967	358	735	687	45	45	46	45
Deltapine 16	957	386	629	657	44	43	43	43
Deltapine 25	912	415	625	651	43	45	45	44
Coker 310	982	385	564	643	45	44	44	44
Auburn 56	810	445	653	636	41	40	40	40
Coker 201	846	401	642	630	45	44	44	44
Hy-Bee 100A	896	441	542	627	41	44	43	43
Deltapine 45A	912	392	569	624	43	43	42	43
Coker 417	866	423	549	613	43	42	42	42
McNair 210	761	413	607	594	40	40	40	40
McNair 511	677	415	552	548	43	40	42	42
Lockett 4789-A	566	293	504	454	41	39	42	41
(Following varieties were not tested at all locations)								
McNair 0612	863				46			
Acala 1517-70		240				39		
Dixie King III		513	666			43	42	
Hy-Bee 200A		446	676			43	43	
Rex Smoothleaf 66		406	616			42	42	

Table 3. Performance of Cotton Varieties in Northern Alabama

Three-year Average, 1971-1972-1973

Variety	Yield of lint per acre				Lint percentage			
	Belle Mina	Cross-ville	Win-field	Av.	Belle Mina	Cross-ville	Win-field	Av.
	Lb.	Lb.	Lb.	Lb.	Pct.	Pct.	Pct.	Pct.
Hancock	1,141	674	941	919	43	43	43	43
Stoneville 213	1,171	603	924	900	42	42	43	42
Stoneville 603	1,145	650	881	892	41	41	41	41
Hy-Bee 100A	1,100	654	823	859	42	43	42	43
Coker 310	1,138	618	784	847	45	44	44	44
Coker 201	1,057	612	869	846	44	43	44	44
Deltapine 25	1,105	593	837	845	44	44	44	44
Deltapine 16	1,091	593	785	823	43	42	42	42
Coker 417	1,093	628	734	818	42	42	42	42
Deltapine 45A	1,080	569	787	812	43	42	42	42
Delcott 277	928	573	852	784	42	41	42	42
Auburn 56	934	641	764	780	41	40	40	40
McNair 511	940	663	734	779	43	40	41	41
McNair 210	907	610	749	755	40	40	39	40
(Following varieties were not tested at all locations)								
Lockett 4789-A	758				40			
Hy-Bee 200A		661	811			43	42	
Rex Smoothleaf 66		602	818			42	42	

Table 4. Performance of Cotton Varieties in Southern Alabama, 1973

Variety	Yield of lint per acre							Lint percentage						
	Auburn	Brewton	Headland	Monroeville	Prattville	Tallassee	Av.	Auburn	Brewton	Headland	Monroeville	Prattville	Tallassee	Av.
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Deltapine 25	827	851	786	857	869	855	841	46	43	43	42	46	45	44
Hy-Bee 100A	767	820	631	885	868	1,051	837	43	42	41	40	43	44	42
McNair 511	679	1,014	682	858	771	981	831	42	41	41	39	42	42	41
Hy-Bee 200A	783	789	681	890	837	969	825	45	42	40	40	42	43	42
Stoneville 603	787	707	685	869	796	985	805	41	42	41	39	41	43	41
Hancock	728	878	739	867	863	749	804	44	43	39	40	43	44	42
Auburn 56	697	913	696	832	776	895	802	41	40	39	38	40	41	40
Deltapine 652	805	766	616	926	837	855	801	46	45	42	42	46	46	45
Stoneville 213	852	767	663	794	857	867	800	44	42	41	39	43	43	42
McNair 0612	714	797	776	847	787	762	780	45	45	41	44	44	46	44
Coker 201	689	898	713	898	809	655	777	44	44	39	43	44	44	43
Deltapine 16	775	716	619	868	755	916	775	44	43	39	42	43	43	42
Deltapine 45A	699	738	751	826	784	836	772	44	43	41	38	43	44	42
Coker 310	673	889	661	871	774	766	772	43	45	39	42	44	44	43
Dixie King III	666	839	644	745	858	851	767	44	42	38	40	43	43	42
Coker 8304	703	876	727	881	709	696	765	44	45	42	43	42	44	43
Coker 220	634	833	749	769	793	795	762	44	44	42	40	42	43	42
McNair 210	541	729	704	997	727	767	744	39	41	39	48	39	41	41
Delcott 277	583	703	569	963	758	880	743	41	42	41	41	42	42	42
Coker 417	632	871	596	775	800	686	727	42	43	40	40	43	42	41
Rex Smooth-leaf 66	644	735	558	806	665	701	685	42	39	39	37	42	42	40
Lockett 4789-A	569	845	596	749	555	498	635	42	39	40	37	40	40	40
(Following varieties were not tested at all locations)														
Deltapine 5916-65	773							44						
McNair 71418	754							43						
Coker 312	727							44						
A6-741-ADE			665		734					42		42		
A6-668-BE			540		701					39		45		
Acala 1517-70	334							40						

Table 5. Performance of Cotton Varieties in Southern Alabama, Two-year Average, 1972-1973

Variety	Yield of lint per acre							Lint percentage						
	Auburn	Brewton	Headland	Monroeville	Prattville	Tallassee	Av.	Auburn	Brewton	Headland	Monroeville	Prattville	Tallassee	Av.
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Hy-Bee 200A	633	891	783	807	961	927	834	42	42	40	40	43	42	42
Hy-Bee 100A	616	867	735	778	946	960	817	41	42	39	41	43	42	42
Deltapine 25	635	961	739	754	929	880	816	44	45	42	43	45	45	44
Stoneville 213	678	829	763	762	905	867	801	42	40	40	41	43	42	42
McNair 511	585	982	663	698	870	958	793	40	41	39	40	42	41	41
Hancock	634	810	823	776	890	798	789	43	43	39	42	43	43	42
Auburn 56	584	912	786	717	812	877	781	38	40	38	39	40	40	39
Delcott 277	581	868	773	765	799	890	779	40	42	40	40	41	41	41
Coker 201	604	942	762	764	836	761	778	42	44	40	43	43	44	42
Deltapine 16	628	740	742	712	870	905	766	42	42	39	42	42	42	41
Stoneville 603	644	742	795	715	824	866	764	39	42	40	40	41	42	40
Coker 310	624	823	739	746	802	840	762	42	44	40	43	44	44	42
Deltapine 652	641	789	764	746	857	738	756	44	45	42	42	45	40	43
Deltapine 45A	573	815	712	695	863	873	755	41	43	40	40	43	43	42
Coker 417	561	878	737	690	842	768	746	40	41	39	41	42	42	41
Rex Smooth-leaf 66	614	796	746	698	727	738	720	40	40	38	39	40	40	40
McNair 210	525	713	765	737	760	722	704	38	40	39	45	39	39	40
(Following varieties were not tested at all locations)														
McNair 0612		809	797	669					44	40	43			
A6-688-BE			737							40				
Lockett 4789-A	505			616				39			39			
Acala 1517-70	270							38						
Dixie King III	587			702	934	841		41			41	43	42	

Table 6. Performance of Cotton Varieties in Southern Alabama, Three-year Average, 1971-1972-1973

Variety	Yield of lint per acre						Lint percentage					
	Auburn	Brew-ton	Head-land	Monroe-ville	Pratt-ville	Av.	Auburn	Brew-ton	Head-land	Monroe-ville	Pratt-ville	Av.
	Lb.	Lb.	Lb.	Lb.	Lb.	Lb.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Hy-Bee 200A	677	1,059	661	785	1,064	849	41	42	39	40	43	41
Deltapine 25	711	1,102	606	772	1,027	844	43	44	40	43	45	43
Hy-Bee 100A	636	1,089	593	770	1,057	829	41	43	38	42	43	41
Coker 201	666	1,089	658	799	931	829	42	43	38	43	44	42
McNair 511	639	1,151	540	788	982	820	39	40	38	40	42	40
Stoneville 213	730	987	600	750	985	810	42	41	39	41	43	41
Coker 417	615	1,050	641	750	963	804	40	42	38	41	42	41
Coker 310	660	1,016	599	776	954	801	42	44	38	43	44	42
Deltapine 16	725	916	625	746	951	793	41	41	38	41	42	41
Hancock	681	887	656	779	948	790	42	43	38	42	43	42
Deltapine 45A	648	999	593	749	952	788	40	43	39	41	43	41
Stoneville 603	663	874	702	764	913	783	39	42	39	40	41	40
Delcott 277	611	1,020	619	773	863	777	39	42	39	40	42	40
Auburn 56	627	1,001	667	690	893	776	38	40	37	39	40	39
McNair 210	570	864	646	719	851	730	38	39	38	43	39	39
Rex Smoothleaf 66	636	848	624	664	777	710	39	40	37	39	40	39
(Following variety was not tested at all locations)												
Lockett 4789-A	539						39					

Table 7. Field Losses of Cotton Varieties, 1973

Variety	AUBURN[1]			PRATTVILLE[2]			
	Ground loss	Harvested yield	Pct. loss	Ground loss	Harvested yield	Pct. loss	Left on plant
	Lb./A.	Lb./A.	Pct.	Lb./A.	Lb./A.	Pct.	Lb./A.
Auburn 56	86	697	11	41	776	5	22
Coker 201	134	688	16	46	809	5	22
Coker 220	64	634	9	40	793	5	19
Coker 310	121	673	15	42	774	5	26
Coker 417	111	632	15	43	800	5	20
Coker 8304	92	703	12	50	708	7	23
Delcott 277	115	583	16	71	758	9	32
Deltapine 16	88	774	10	42	755	5	23
Deltapine 25	52	827	6	45	869	5	20
Deltapine 45A	97	699	12	40	784	5	22
Deltapine 652	57	805	7	54	837	6	24
Hancock	161	728	18	59	863	6	25
Hy-Bee 100A	63	767	8	41	868	4	31
Hy-Bee 200A	84	783	10	38	837	4	30
Lockett 4789-A	75	569	12	58	555	9	69
McNair 210	143	541	21	34	727	4	25
McNair 511	110	678	14	28	771	4	19
McNair 0612	126	714	15	40	787	5	37
Rex Smoothleaf 66	98	644	13	56	665	8	30
Dixie King III	104	666	13	39	858	4	16
Stoneville 213	68	852	7	46	857	5	16
Stoneville 603	100	786	11	50	796	6	23
(Following varieties were not tested at both locations)							
Coker 312	81	727	10				
Deltapine 5916-65	100	773	11				
McNair 71418	45	754	6				
Acala 1517-70	74	334	18				
A6-668-BE				53	701	7	32
A6-741-ADE				63	734	8	27

[1]Picked November 30, 1973

[2]Picked November 15, 1973

Table 8. Percentage of Plants Showing Symptoms of Fusarium Wilt[1]

Variety	1 year 1973	2-yr av. 1972-73	3-yr av. 1971-73	4-yr av. 1970-73	5-yr av. 1969-73	6-yr av. 1968-73	7-yr av. 1967-73
Auburn 56	29.5	19.6	19.1	25.8	22.1	21.2	18.3
Coker 201	4.2	10.2	24.1	36.3	36.7	42.3	39.8
Deltapine 16	16.7	21.3	33.4	46.1	43.0	41.1	37.9
Deltapine 45A	7.5	8.5	29.8	46.7	42.8	40.5	35.2
Rex Smoothleaf 66	26.5	23.7	31.4	32.3	28.6	32.4	28.8
Stoneville 213	76.2	53.8	53.2	63.6	68.0	72.9	68.4
Coker 310	46.7	28.3	42.4	31.8	27.5		
Coker 417	36.2	33.1	38.4	41.2	43.6		
Stoneville 603	16.8	18.6	28.9	31.3	28.3		
Delcott 277	21.0	16.3	23.4	34.7			
Deltapine 25	40.0	26.7	28.9				
Hy-Bee 100A	31.0	32.9	54.0				
Hy-Bee 200A	8.7	26.3	44.9				
McNair 210	42.8	36.1	33.1				
McNair 511	29.0	23.1	27.8				
A6-741-AE	31.2	22.3					
Coker 8304	30.8	28.6					
Deltapine 652	33.7	25.3					
Coker 220	46.5						
Coker 312	40.0						
Dixie King III	42.0						
Hancock	84.0						
Lockett 4789A	64.8						
McNair 0612	52.5						
McNair 71418	38.3						

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