

**COTTON
VARIETY
IMPROVEMENT
FOR
SOUTHEAST
MISSOURI**

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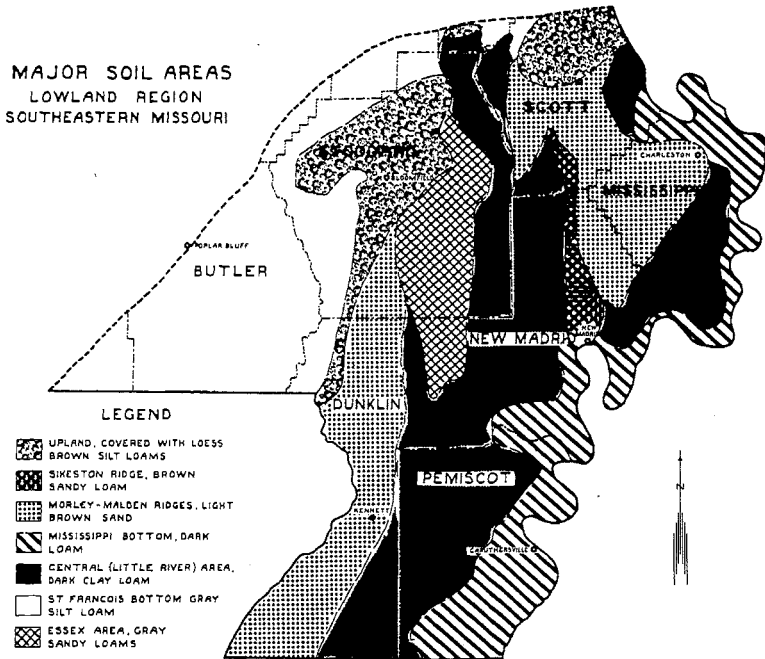


Figure 1.

Introduction

The economy of southeast Missouri is centered around successful cotton production. Incomes from lint cotton, cottonseed and cottonseed products rank high among those for other agricultural crops and products produced in Missouri. The interest of mills in southeast Missouri cotton and the production of cotton planting seed have increased significantly during the past few years. The increased demand for Missouri-grown cotton and cotton planting seed suggests greater profits from future cotton production. Continued variety improvement and good production, harvesting, and handling practices will be necessary to maintain this competitive position.

A wide range of soil types exists within the cotton producing area of southeast Missouri (Figure 1). Major soil-born cotton diseases frequently are associated with specific soil types. Fusarium wilt (Fusarium oxysporium f. vasinfectum (Atk.) Snyder and Hansen) and root-knot nematodes (Meioidogyne incognita var. acrita) are common in light sandy soils. Verticillium wilt (Verticillium alboatrum Reinke and Berth) is most common in clay loam or loam soils adjacent the Mississippi River but is also found in other soils throughout the Bootheel. Bacterial blight or angular leaf spot (Xanthomonas malvacearum (E. F. Sm.) Dawson) occurs generally.

Thus variety tests are needed under various combinations of disease and soil type. The testing has led to some important conclusions concerning adaptation of varieties. The tests also help determine major objectives for our breeding program, designed to produce better cotton varieties for future production in southeast Missouri.

Description of Tests

Variety and strain tests were conducted on sandy loam soils free of wilt diseases at Sikeston, 1958 and 1959. The sandy loam test near Portageville in 1960 was moderately infested with verticillium wilt and lightly infested with fusarium wilt and root-knot nematodes.

Tests on sandy soils infested with fusarium wilt and root-knot nematodes were made near Diehlstadt, 1958 to 1960, and at Malden in 1959.

Tests on loam soils infested with verticillium wilt were near Dorena in 1958 and 1959, at Cottonwood Point in 1959, and at Sikeston, 1960.

Tests on clay soils were near Bell City in 1958 and Bragg City, 1959-60.

Average data for recommended varieties are given for the period 1958-60. Average performances for 1959-60 of some experimental strains are included.

Commercial cotton varieties common in the Mississippi Delta, new strains intended for release, and certain experimental strains were selected for testing. Acid delinted and treated breeder's seed of each variety or strain, obtained directly from representative breeders, was planted annually. Seeds were hill-dropped at 10-12 inch intervals. Stands were uniformly thinned to two or three plants in each hill.

Plot designs consisted of five or six replications of randomized blocks or lattice squares. The design employed varied with the number of test entries. Within each replication, entries were grown as four-row plots. Length of plots varied from 40 to 100 feet. The middle two rows were sampled and harvested for ginning, fiber quality, and yield information.

Recommended amounts of commercial fertilizer were applied as a sidedressing following seedling emergence. Average applications were equivalent to 60-60-60 balanced fertilizer unless otherwise noted.

Supplemental moisture was applied when needed by sprinkler or furrow irrigation systems at Sikeston, Malden, Diehlstadt, Bell City, and Bragg City.

Insects were controlled according to station recommendations. Cotton in all tests was chemically defoliated at maturity by high clearance ground applicators. The average date was October 1.

Most tests were hand picked twice. Tests at Malden and Sikeston during 1959 were harvested by mechanical pickers. Date of first picking varied from October 1 to October 18 and when cotton in the test plots was estimated to be 50-70 percent open.

The severity of bacterial blight in 1960 tests was noted at the peak of leaf infection in early August. Fusarium wilt-root knot and verticillium wilt infected plants were counted at two-week intervals during 1958 and 1960, beginning around July 1. Final counts were made September 1. In 1959, fusarium wilt counts were determined by differences between initial and final stand counts recorded August 26. It was assumed that decreases in stands were due to missing dead plants killed by fusarium wilt. These missing plants and those plants that showed wilt symptoms were combined to make up the total wilt count. Though good negative correlations with yields were obtained, results were not comparable or as accurate as those obtained by periodic counts. The 1959 verticillium wilt counts included only those plants that expressed symptoms on August 28. These methods were not employed in 1960. Percentage of diseased plants for each variety was determined.

Prior to first picking, 100-boll samples of seed cotton for each entry and from three replications of each test were retained for ginning and fiber analysis and 0.6 pound spinning tests. Additional samples were retained for specific regular spinning tests. Fiber analysis and spinning test results were obtained through cooperation with the Cotton and Cordage Fibers Research Branch, Agricultural Research Service, U.S.D.A., at Knoxville, Tennessee and College Station, Texas. Staple lengths were obtained from the U.S.D.A. Cotton Classing facilities at Hayti, Mo.

Statistical analyses for yield and other characters were made by randomized block procedures for the analysis of variance. Differences required for significance are expressed by minimum and maximum mean differences derived from Duncan's Multiple Range tests.

Test Results for Seven Varieties

Tables 1 and 3 report average total lint yields and lint yields at first picking for seven cotton varieties in tests from 1958-60. Tables 2 and 4 present average measurements of lint percentage, boll size, fiber length, fiber strength, and fiber fineness.

Tables 5 through 8 give the spinning performances of fiber for these varieties. Ratings are explained following Table 5. In most instances, yarn strengths and the average break factors have been used to express comparative spinning performance.

Rex was early maturing, resistant to fusarium wilt and bacterial blight, and tolerant to verticillium wilt. Rex did not appear tolerant to root-knot and tended to be weak-stalked and yielded less when the root-knot incidence was high. Rex produced high yields under a wide range of soil and other environmental conditions. Its short-plant type, semi-cluster fruiting habit, and the medium-sized, well-fluffed but moderately storm resistant open bolls, constituted other desirable features.

Because of excessive leaf hairs, machine harvested crops of Rex usually are difficult to clean at the gin. While some grade reduction has occurred, it has often been offset by the good yields.

Fiber and spinning test data indicated Rex fiber tended to be below the average in strength.

Deltapine-SL (Smooth Leaf) possessed leaves nearly free of hairs. With smooth leaves, the dried leaf particles were more easily removed from the lint during ginning. This usually results in a higher grade, especially for machine harvested cotton. Deltapine-SL is closely related to Deltapine 15. Deltapine-SL produced larger and earlier maturing crops than Deltapine 15 on sandy loam soils. It produced yields equal to Deltapine 15 on clay loam and loam soils infested with verticillium wilt. Deltapine-SL, like Deltapine 15, was extremely susceptible to fusarium wilt and root-knot and produced very low yields on sandy soils infested with these diseases. Deltapine-SL yielded less than Rex on clay soils.

Fiber and spinning qualities of Deltapine-SL equaled those for Deltapine 15. The latter has been the standard of quality among the leading Delta cotton varieties.

Fox 4 demonstrated some tolerance to fusarium and verticillium wilts, but it lacked the excellent fusarium wilt resistance and root-knot tolerance present in Auburn 56. On clay loam soils infested with verticillium wilt, Fox 4 produced yields equal to Deltapine-SL and Deltapine 15 but less than Rex and Dixie King 6. Fox 4 lacked storm resistance and when left unpicked for any length of time, locks tended to string out and some seed cotton dropped to the ground.

Fox 4 exhibited good fiber qualities and like other Deltapine varieties, when grown under suitable soil conditions, performed well in spinning tests.

Dixie King 6 exhibited good resistance to fusarium wilt and some tolerance to root-knot. It matured later than Auburn 56 and Rex and produced lower yields than these varieties when grown on fusarium wilt-infested sandy soils.

Dixie King 6, though later maturing than Rex, produced total lint yields comparable to those of Rex when grown on clay loam soil infested with verticillium wilt. On sandy loam wilt-free soils, Dixie King 6 produced acceptable lint yields. When this variety was grown on clay soils, its total lint yields and lint yield at first picking were significantly below that for Rex.

Dixie King 6 produced big bolls which occasionally lacked storm resistance and tended to string out. During some seasons on sandy, fusarium wilt-infested land it produced a slightly shorter fiber than did Auburn 56. On very fertile sandy loam soils, Dixie King 6 grew taller than most common cotton varieties.

In fiber quality, Dixie King 6 compared well with Fox 4 and Deltapine-SL. Under some conditions it appeared to spin better than Rex and Auburn 56, even though fiber lengths were slightly shorter. (After this manuscript was submitted for publication Dixie King 6 was removed from the 1962 Recommended Variety list by action of the Missouri Agricultural Experiment Station Crops Conference)

Auburn 56 consistently produced excellent yields of good quality fiber on light sandy soils severely infested with fusarium wilt and root-knot nematodes. Of the varieties tested, it demonstrated the greatest resistance to these diseases. It stood well in the field, was storm resistant, and matured moderately early. Fiber and spinning qualities were average.

On sandy loam wilt-free soils, Auburn 56 produced only average yields. It produced satisfactory yields on clay soils.

Delfos 9169 produced good test yields only on sandy loam wilt-free soils. During the long season in 1959, the normally later maturing Delfos 9169 produced yields comparable to those of Rex. Delfos 9169 averages for 1953-60 were less than those for Rex and Deltapine-SL on sandy loam wilt-free soils but comparable to those for Fox 4, Dixie King 6, and Auburn 56. It matured later than Rex but was similar to Deltapine-SL, Dixie King 6, and Auburn 56. It was earlier than Deltapine 15. Delfos 9169 matured very late on clay soils.

Delfos 9169 was susceptible to fusarium wilt and root-knot and verticillium wilt. Regardless of performance, Delfos 9169 has been a very popular variety. Its longer staple and good machine picking characteristics have made it desired by many growers.

Though possessing longer staple, the spinning performance of Delfos 9169 did not appear to be superior to Fox 4 or Auburn 56. It was better than that of Rex.

Deltapine 15 has shown some tolerance to verticillium wilt and has produced acceptable yields on infested clay loam soils. Because it is very susceptible to fusarium wilt and root-knot and is late-maturing, it has produced low yields on sandy, fusarium wilt-infested soils and below average yields on sandy loam and clay soils free of wilt. (After this manuscript was submitted for publication, Deltapine 15 was removed from the 1962 Recommended Variety list by action of the Missouri Agricultural Experiment Station Crops Conference)

Experimental Variety and Strain Tests

In addition to the standard commercial varieties, several experimental strains were included in the 1960 tests to demonstrate the value of wilt-resistant cotton varieties for southeast Missouri production. Mo. 58-432, Mo. 58-449, and Mo. 58-463 were early maturing, fusarium wilt-resistant strains selected from Auburn 56. Mo. 58-1750 was tolerant to wilt. Mo. 58-140 and Mo. 58-138 were very susceptible to fusarium and verticillium wilts. Mo. 58-321, tolerant to verticillium wilt, and Mo. 58-141, an early, wilt-susceptible strain, were tested on a limited basis.

Fifteen of the 25 entries in the sandy loam test at Portageville were also included in other tests throughout the Mississippi Delta. These were Rex, Stoneville 7, Deltapine-SL, Lankart 57, Fox 4, Stoneville 3202, Deltapine 15, Stardel, Auburn 56, Dixie King, Coker 124, Empire W.R., Delfos 9169, Coker 100A (W.R.), and Acala 4-42. They were grown at Clarksdale, Ark.; Lauderdale, Tenn.; Tunica and Stoneville, Miss; and St. Joseph, La. The four beltwide leading varieties, Acala 4-42, Deltapine 15, Lankart 57, and Coker 100A (W.R.), were grown in approximately 34 tests across the Cotton Belt. This is a part of a state-federal-private industry cooperative program for the improvement of cotton varieties. Complete information will be published at a later date.

Lint yields, earliness, fiber quality and other characteristics of varieties and strains grown at Portageville are given in Tables 9 and 10. The need for wilt-resistant cotton varieties in southeast Missouri is well illustrated by the comparison of lint yields on wilt-free soils at Sikeston in 1959 with 1960 yields on fields infested with wilt and bacterial blight. Performance of Rex, which is resistant to bacterial blight and fusarium wilt and tolerant to verticillium wilt, was excellent both seasons. Performance of Mo. 58-150, Mo. 58-138, Mo. 58-140, Mo. 58-141, and Delfos 9169 was poorer in 1960. Other entries, Stoneville 7 which possessed tolerance to verticillium wilt, and Mo. 58-449, an early-maturing strain very resistant to fusarium wilt and tolerant to root-knot, also produced excellent yields.

Adverse weather early in the 1960 season at Diehlstadt, combined with stunting from excessive pre-emergence weed control chemicals, suppressed the growth of young plants. None of the varieties recovered fully from these ill effects but their performance still revealed the importance of resistance to fusarium wilt and tolerance to root-knot on sandy soils infested with these diseases.

Maturity differences among Auburn 56, Rex, and Dixie King 6 were not as well differentiated as during past seasons. The same was true of comparisons between Auburn 56 and the related strains, Mo. 58-432, Mo. 58-449 and Mo. 58-463 but averages for 1959-60 illustrate the advantages of the earlier-maturing, fusarium wilt-resistant

strains, Mo. 58-432 and Mo. 58-449 (Table 11). Other improved characteristics of these strains are better picking qualities, moderate storm resistance, reduced leaf hairiness, compact fruiting habits and plant uniformity. Averages of fiber and spinning tests indicated that these strains were nearly equal to Auburn 56 and slightly superior to Rex in lint quality (Tables 12 and 13).

Lint yields and other characteristics of varieties and new strains, grown on verticillium wilt-infested clay loam soil at Sikeston, are given in Tables 14 and 15. Stoneville 7 was one of the highest yielding varieties. Others that produced good yields were Mo. 58-321, Mo. 58-432, Dixie King 6 and Rex. In past years, Stoneville 7, though tolerant to verticillium wilt, has been inconsistent in maturity, below average in spinning performance, and susceptible to fusarium wilt and root-knot. Because of these, it was deleted from the 1958-59 tests but was reentered in general tests in 1960. Fiber quality of the current Stoneville 7 appeared to be improved (Table 10).

The abnormal early season in 1960, followed by late season irregularities, may have resulted in reduced yields of several varieties and strains that had performed well on verticillium wilt-infested soil during 1959. This was especially true for Mo. 58-463. Mo. 58-321 yielded comparable to Stoneville 7. Its performance was encouraging since Mo. 58-321 compared with Rex in earliness but was superior in fiber and spinning qualities (Tables 14, 15, and 16).

The yielding ability and early maturity of Rex was outstanding among the commercial varieties grown on heavy clay or gumbo soils. Though only one picking was possible, the yield results followed a similar pattern to those of past years (Table 17). The necessity of replanting, followed by delayed emergence, probably accounted for the superior performance of Rex and the other early-maturing strains, Mo. 58-141, Mo. 58-449, and Mo. 58-140. The fusarium wilt resistance in Mo. 58-449 did not appear to alter its ability to produce early crops on heavy clay soil.

The average performances of cotton varieties and new strains in the four trials in southeast Missouri during 1960, revealed some interesting relationships. Superior performance appeared highly correlated with early maturity and disease resistance (Table 19). Varieties and strains, such as Rex, Mo. 58-432 and Mo. 58-449, that were disease-resistant and early-maturing produced the highest average yields. Those that were susceptible to diseases or late in maturity or both produced the lowest average yields.

Observations and Recommendations

The wide range of soil types and the natural occurrence of major cotton diseases in southeast Missouri necessitate extensive testing to find cotton varieties most suitable for commercial production. These tests serve as a guide for cotton variety recommendations to southeast Missouri cotton producers.

Present marketing standards do not fully evaluate superior fiber properties and their influence on spinning performance. Yet, users of cotton fiber are fully aware that cottons which inherently possess superior fiber properties are more efficient spinners and frequently produce end products of an improved quality. As a result, buyers seek out areas where the desired quality is available. Thus, producers need to pay more attention to the fiber quality of varieties they grow. It is also the responsibility of the breeder to insure the presence of these qualities in new varieties for future production.

Though not as extensive as desired, variety test results during 1958-60 have led to some important conclusions concerning the adaptation of commercial cotton

varieties in southeast Missouri. The 1961 recommendations are given. These are based upon average performance of cotton varieties grown on different soil types and subjected to natural disease conditions. As additional information is obtained each year, these recommendations may change.

Recommended Varieties

Sandy Loam Wilt-Free Soils

Rex	Auburn 56
Deltapine-SL	Delfos 9169
Fox 4	Deltapine 15
Dixie King 6	

Light Sandy Soils Infested with Fusarium Wilt and Root-Knot

Auburn 56
Rex
Dixie King 6

Clay Loam Soils Infested with Verticillium Wilt

Rex	Deltapine-SL
Dixie King 6	Deltapine 15
Fox 4	Auburn 56

Clay Soils - "Gumbo"

Rex

Editors Note: After receipt of transcript, Deltapine 15 and Dixie King 6 were removed from the recommended list for 1962.

Rex has produced high yields under wide ranges of soil and other environmental conditions. It is the only variety that warrants a general recommendation for all soils in southeast Missouri. However, it should be re-emphasized that the excessive leaf hairiness of Rex may result in lower grades of machine-harvested crops. And, although the below average spinning performance of Rex has not been greatly criticized by mills, either its fiber should be strengthened by breeding or the variety should be replaced by one with better agronomic characteristics and improved fiber.

Frequently on sandy loam soils that are normally free from fusarium wilt,

light sand spots infested with fusarium wilt and root-knot may occur. Here, Rex, Dixie King 6, or Auburn 56 might be preferred to the fusarium wilt susceptible varieties, Deltapine-SL, Delfos 9169, and Deltapine 15.

The very high resistance to fusarium wilt and root-knot found in Auburn 56, combined with its stiff stalk, good storm resistance and early maturity, suggests a preference for Auburn 56 for growing on sandy soils infested with fusarium wilt and root-knot. However, Rex and Dixie King 6 have been included to give growers a wider choice of varieties. Seed of Dixie King 6 may be limited and this variety should not be confused with "Dixie King."

Deltapine-SL has produced yields equivalent to Deltapine 15 on clay loam, verticillium wilt infested soils and higher yields of earlier-maturing cotton on sandy loam wilt-free soils. The added advantage of a nearly smooth leaf warranted the addition of Deltapine-SL to the 1961 recommendations. Deltapine 15 will be deleted for 1962.

The performance of varieties and new strains in yield trials at several locations in southeast Missouri have demonstrated the necessity of early maturity and disease resistance to obtain maximum lint yields of quality cotton. Need for these characteristics will probably increase as production hazards become more wide spread. Current emphasis in breeding programs must deal with future needs as well as with present demands.

In Missouri, the breeding of high yielding, early-maturing varieties is stressed. These can be derived only through development of more efficient plant types that set bolls rapidly during the short fruiting period. Efficient fruiting can be partially assured by inherent resistance to the diseases, bacterial blight, fusarium wilt, root-knot, and verticillium wilt. Efficient economic production in the future will demand complete mechanization of all cultural practices. New varieties must be better suited to mechanical harvesting. Smooth or semi-smooth leaves and other plant parts that result in less trash in machine-harvested cotton are needed. Stiff-stalked varieties possess adequate storm resistance are also required for mechanical harvesting of cotton. Fiber that possesses the inherent properties to resist weathering and handling will help to preserve quality. Stronger, and more elastic fibers of 1 1/16 to 1 1/8 inch staple should provide better spinning qualities needed to maintain Missouri's competitive position with other cotton producing areas.

Summary

The wide range of soil types and the prevalence of several major cotton diseases in southeast Missouri make it necessary to conduct specific cotton variety tests to arrive at sound varietal recommendations. These tests have led to important conclusions concerning the adaptation of commercial varieties to conditions found in the northern part of the Mississippi Delta. They also aid in determining major objectives for breeding better cotton varieties for southeast Missouri.

Commercial cotton varieties common in the Mississippi Delta, new commercial strains, and certain experimental strains were selected for testing during 1956-60. Only selected data for 1958-60 are reported.

The varieties Rex, Deltapine Smooth Leaf, Fox 4, Dixie King 6, Auburn 56, Delfos 9169, and Deltapine 15 produced good lint yields on sandy loam soils free of wilt. Only the fusarium wilt-resistant varieties, Auburn 56, Rex, and Dixie King 6, did well on sandy soils infested with fusarium wilt and root-knot nematodes.

Rex, Deltapine Smooth Leaf, Fox 4, Dixie King 6, Auburn 56, and Deltapine 15 produced acceptable yields on loam soils infested with verticillium wilt. Delfos 9169 was very susceptible to this disease.

Rex was earlier-maturing and produced the highest yields on clay soils. Rex was the only variety that performed well at all locations but spinning data revealed this variety below average in fiber quality.

Early-maturity and disease-resistance, demonstrated by the performance of Rex in 1958-60, and Mo. 58-432 and Mo. 58-449 in the 1960 tests, were highly important in obtaining maximum yields of lint cotton. Characteristics that permit efficient mechanical harvesting and fiber properties necessary to good spinning quality are other major objectives in the breeding of new cotton varieties.

Acknowledgements

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TABLE 1. LINT YIELDS FOR COTTON VARIETIES GROWN
IN SOUTHEAST MISSOURI, 1958-60

Variety or Strain	1958-60 (3-year Average)			
	Total Lint Yield	Earliness		
		Lint-1st Pick		
	Lbs/Acre	Lbs/Acre	Rank	% of crop
<u>Sandy Loam Wilt-Free Soils^a</u>				
1. Rex	911	717	1	79
2. Deltapine-SL	902	606	4	67
3. Fox 4	861	587	6	68
4. Dixie King 6	854	592	5	69
5. Auburn 56	849	610	3	72
6. Delfos 9169	831	617	2	74
7. Deltapine 15	<u>788</u>	<u>508</u>	7	<u>64</u>
Average	845	601		71
<u>Sandy Fusarium Wilt-Root Knot Infested Soils^b</u>				
1. Auburn 56	756	591	2	78
2. Rex	729	615	1	84
3. Dixie King 6	683	544	3	80
4. Fox 4	528	460	4	87
5. Delfos 9169	435	329	5	76
6. Deltapine-SL	283	258	6	91
7. Deltapine 15	<u>207</u>	<u>183</u>	7	<u>88</u>
Average	517	426		82

^aSikeston, 1958-59, and Portageville, 1960 (3 tests).

^bDiehlstadt, 1958; Diehlstadt and Malden, 1959; Diehlstadt, 1960 (4 tests).

TABLE 2. BOLL AND FIBER PROPERTIES FOR COTTON VARIETIES GROWN IN SOUTHEAST MISSOURI, 1958-60

Variety or Strain	Lint %	Boll Size Grams/ Boll ^a	Fiber Length				Fiber Strength		Fiber
			Staple 1/32	U.H.M. ^b	M. ^c	Unif. ^d	Tenacity	Elongation	Fineness
			Inches	Inches	Inches	Ratio %	T ₁ ^e	E ₁ ^f	Micronaire ^g
<u>Sandy Loam Wilt-Free Soils, 1958-60</u>									
1. Rex	35.3	6.9	35	1.14	.95	83	1.70	8.3	3.9
2. Deltapine-SL	38.8	6.0	35	1.19	1.02	86	1.86	10.3	4.5
3. Fox 4	36.4	6.4	35	1.14	.98	86	1.88	8.2	4.7
4. Dixie King 6	36.2	7.7	35	1.16	1.00	86	1.84	7.1	4.4
5. Auburn 56	35.8	6.4	35	1.12	.96	86	1.76	9.3	4.2
6. Delfos 9169	34.6	7.2	36	1.22	1.02	84	1.70	8.6	4.0
7. Deltapine 15	37.4	5.9	35	1.15	.99	86	1.82	9.8	4.2
<u>Sandy Fusarium Wilt-Root Knot Infested Soils, 1958-60</u>									
1. Auburn 56	36.2	6.2	35	1.11	.93	84	1.73	8.6	4.4
2. Rex	36.6	6.6	35	1.12	.93	83	1.64	8.4	4.3
3. Dixie King 6	38.0	7.4	34	1.08	.93	86	1.74	7.5	4.8
4. Fox 4	37.1	6.0	34	1.12	.98	88	1.82	8.1	4.8
5. Delfos 9169	35.1	6.4	35	1.17	.96	82	1.70	8.8	4.0
6. Deltapine-SL	38.8	5.4	35	1.12	.97	87	1.82	9.6	4.3
7. Deltapine 15	38.9	5.6	35	1.10	.91	83	1.85	9.1	4.1

^aGrams of seedcotton per boll.

^bUpper half mean or the average of the longest 50% of fibers as measured by the Fibrograph.

^cMean or the average length of all fibers longer than 1/4 inch.

^dUniformity Ratio: 80 = Low length uniformity, 90 = High length uniformity.

^eTensile strength by Stelometer at 1/8" gauge; 1.5 is low strength, 2.00 is high strength.

^fElongation or fiber stretch; 5 = Low, 10 = High.

^gMicronaire of 3.0 and lower = fine, 5.0 = coarse.

TABLE 3. LINT YIELDS FOR COTTON VARIETIES GROWN IN SOUTHEAST MISSOURI, 1958-60

Variety or Strain	1958-60 (3-Year Average)			1959-60 (2-Year Average)			% of Crop
	<u>Total Lint Yield</u>		<u>Earliness</u>	<u>Total Lint Yield</u>		<u>Earliness</u>	
	Lbs/Acre	Lbs/Acre	Lint 1st Pick Rank	Lbs/Acre	Lbs/Acre	Lint 1st Pick Rank	
<u>Clay Loam Verticillium Wilt Infested Soils^a</u>							
1. Rex	746	624	1	837	740	1	88
2. Dixie King 6				817	676	2	83
3. Fox 4	660	528	2	749	642	3	86
4. Deltapine-SL	658	518	3	729	585	5	80
5. Deltapine 15	655	497	5	718	564	6	79
6. Auburn 56	639	511	4	721	619	4	86
7. Delfos 9169	<u>442</u>	<u>298</u>	6	<u>534</u>	<u>366</u>	7	<u>69</u>
Average	633	496		729	598		82
<u>Clay "Gumbo" Wilt-Free Soils</u>							
1. Rex	620	548	1	691	636	1	92
2. Fox 4	510	430	2	547	487	2	89
3. Auburn 56	504	416	3	553	482	3	87
4. Dixie King 6				538	461	4	86
5. Deltapine-SL	474	394	5	460	398	6	87
6. Deltapine 15	472	400	4	488	433	5	89
7. Delfos 9169	<u>409</u>	<u>316</u>	6	<u>427</u>	<u>352</u>	7	<u>82</u>
Average	498	417		529	464		88

^aDorena, 1958; Dorena and Cottonwood Point, 1959; Sikeston, 1960 (4 tests).

^bBell City 1958 and Bragg City 1959-60 (3 tests).

TABLE 4. BOLL AND FIBER PROPERTIES FOR COTTON VARIETIES GROWN IN SOUTHEAST MISSOURI, 1959-60

Variety or Strain	Lint %	Boll Size Grams/ Boll	Fiber Length				Fiber Strength		Fiber Fineness
			Staple 1/32 Inches	U. H. M. Inches	M. Inches	Unif. Ratio %	Tenacity T ₁	Elongation E ₁	Micronaire
<u>Clay Loam Verticillium Wilt Infested Soils, 1959-60</u>									
1. Rex	36.5	7.3	36	1.14	.94	82	1.65	7.4	4.0
2. Dixie King 6	37.1	7.7	36	1.13	.96	85	1.79	6.5	4.5
3. Fox 4	37.1	6.2	36	1.16	.99	85	1.82	7.5	4.4
4. Deltapine-SL	38.3	5.8	37	1.17	.98	84	1.91	9.0	4.3
5. Deltapine 15	38.1	6.2	36	1.15	.96	83	1.83	8.5	4.0
6. Auburn 56	36.1	6.4	36	1.12	.95	85	1.77	8.0	4.2
7. Delfos 9169	34.5	6.8	37	1.20	.98	82	1.76	7.9	4.2
<u>Clay or "Gumbo" Wilt-Free Soils, 1959-60</u>									
1. Rex	37.1	6.4	36	1.15	.96	83	1.70	7.9	4.1
2. Fox 4	36.7	5.8	35	1.16	1.02	88	1.86	7.5	4.8
3. Auburn 56	36.6	6.2	36	1.15	.99	86	1.85	8.4	4.4
4. Dixie King 6	37.6	7.3	36	1.15	.98	85	1.88	6.3	4.8
5. Deltapine-SL	39.2	5.5	36	1.17	1.00	85	1.88	9.4	4.9
6. Deltapine 15	38.6	5.7	36	1.14	.96	84	1.93	8.9	4.6
7. Delfos 9169	35.3	6.6	36	1.21	.98	81	1.85	8.2	4.2

TABLE 5. REGULAR SPINNING TEST VALUES FOR REX, DELFOS 9169, AUBURN 56, AND FOX 4
GROWN ON SANDY LOAM WILT-FREE SOIL AT SIKESTON, 1957-59

Determination	3-Year Average (1957-59)			2-Year Average (1957 & 1959)			
	Rex	Delfos 9169	Fox 4	Rex	Delfos 9169	Auburn 56	Fox 4
<u>Classification</u>							
Grade	SLM	SLM	LM /	LM /	LM /	SLM	LM /
Staple	1-3/32 /	1-1/8 /	1-3/32 /	1-3/32 /	1-1/8	1-1/16 /	1-3/32 /
<u>Fiber Length</u>							
Upper Half Mean	1.14	1.20	1.12	1.14	1.20	1.10	1.12
Mean	.90	.95	.90	.91	.94	.89	.91
Unif. Ratio	79	79	80	80	78	81	81
<u>Manufacturing</u>							
Waste, picker & card % ^b	6.75 ^a	6.69 ^a	7.39 ^a				
Neps/100 sq. in. card webb ^c	6	6	6	6	6	5	5
Yarn strength and appearance ^d carded 22's (lbs. & grade)	117.3B	123.9B	127.4B	118.7B /	123.8B /	121.4B /	126.9B
Yarn strength and appearance ^d carded 50's (lbs. & grade)	40.8C /	43.1C /	45.0C /	41.3B	42.1C /	41.8C /	44.5C /
Average break factor ^e	2310	2441	2526	2338	2415	2375	2509
Average appearance index ^f	108	107	102	110	108	108	105

^a1958 only, data for 1957 and 1959 unreliable. ^bWaste: percent of total fiber waste during the picking and carding phase of spinning. ^cNeps: tangled masses of immature fibers. ^dYarn strength (the higher the value the stronger the yarn) and yarn grade (A - good; D - poor). ^eAverage break factor: an index for comparing yarn strength (the higher the value the stronger the yarn). ^fIndex of 130 is excellent; 60 is very poor.

TABLE 6. REGULAR SPINNING TEST VALUES FOR COTTON VARIETIES
GROWN ON WILT-FREE SOILS AT SIKESTON IN 1959

Determination	Rex	Fox 4	Delfos 9169	Auburn 56	Dixie King 6
<u>Classification</u>					
Grade	LM	LM	LM	SLM	LM
Staple	1-3/32	1-3/32	1-3/32	1-1/16	1-3/32
<u>Fiber Length (Fibrograph)</u>					
U.H.M. (Inches)	1.10	1.06	1.12	1.05	1.08
Mean (Inches)	.86	.86	.86	.83	.88
Unif. Ratio	78	81	77	79	81
<u>Manufacturing</u>					
Waste, picker & card % ^a					
Neps/100 sq. in. card webb	7	5	5	5	5
Yarn strength & appearance:					
Carded 22's (lbs. & grade)	114.6B	122.2B	119.6B	119.6B	121.7B ✓
Carded 50's (lbs. & grade)	39.1B	42.8C ✓	40.6B	40.6C ✓	42.2B
Average Break factor	2238	2414	2331	2320	2394
Average appearance index	110	105	110	105	115

^aNet weight fed picker less than five pounds, therefore waste results were not considered reliable.

TABLE 7. REGULAR SPINNING TEST VALUES FOR COTTON VARIETIES GROWN
ON FUSAIUM WILT-ROOT KNOT INFESTED SOIL AT DIEHLSTADT, 1958-59

Determination	1959			1958-59 Average	
	Auburn 56	Rex	Dixie King 6	Auburn 56	Rex
<u>Classification</u>					
Grade	M	M	M	SLM ^a	SLM ^a
Staple	1-3/32	1-3/32	1-1/16	1-3/32	1-1/16 ^a
<u>Fiber Length (Fibrograph)</u>					
U.H.M. (Inches)	1.07	1.09	1.06	1.07	1.07
Mean (Inches)	.86	.87	.86	.87	.84
Unif. Ratio	80	80	81	81	79
<u>Manufacturing</u>					
Waste, picker & card %	a	a	9.57	8.66	7.86
Neps/ per 100 sq. in. card web.	3	4	5	3	5
Yarn strength & appearance:					
Carded 22's (lbs. & grade)	118.6B	114.5B	123.3B ^a	117.8B	115.2B
Carded 50's (lbs. & grade)	41.2C ^a	39.4C ^a	43.1C ^a	41.0B	39.6B
Average break factor	2335	2245	2434	2320	2256
Average appearance index	105	105	110	110	110

^aNet weight fed picker less than five pounds, therefore waste results were not considered reliable.

TABLE 8. REGULAR SPINNING TEST VALUES FOR COTTON VARIETIES GROWN ON VERTICILLIUM WILT INFESTED SOILS AT DORENA IN 1959

Determination	Rex	Deltapine 15	Deltapine SL	Fox 4	Auburn 56	Dixie King 6
<u>Classification:</u>						
Grade	SLM	SLM	SLM	SLM	SLM	M
Staple	1-1/16	1-3/32	1-3/32	1-3/32	1-3/32	1-3/32
<u>Fiber Length (Fibrograph)</u>						
U.H.M. (Inches)	1.09	1.09	1.12	1.10	1.10	1.09
Mean	.83	.84	.86	.88	.86	.86
Unif. Ratio	76	77	77	80	78	79
<u>Manufacturing</u>						
Waste, picker & card %	11.17	a	a	9.67	11.26	9.38
Neps/100 sq. in card web.	12	17	9	14	13	13
Yarn strength & appearance:						
Carded 22's (lbs. & grade)	115.8B	128.2C/	130.7C/	128.1C/	119.0C/	127.2C/
Carded 50's (lbs. & grade)	39.6C	45.0C	44.7C/	44.5C/	41.1C	44.1C
Average break factor	2264	2535	2555	2522	2336	2502
Average appearance index	100	95	100	95	95	95

^aNet weight fed picker less than five pounds, therefore waste results were not considered reliable.

TABLE 9. LINT YIELDS AND OTHER CHARACTERISTICS FOR COTTON VARIETIES AND NEW STRAINS
GROWN ON A SANDY LOAM SOIL, PORTAGEVILLE, 1960

Variety or Strain	<u>Total Lint Yields</u>		<u>Earliness</u>			<u>Disease Reaction</u>				Lint % Boll Size Grams/ Boll	
	<u>Lbs/Acre</u>		<u>Lbs/Acre</u>			<u>% of Crop</u>	<u>Bacterial</u>	<u>Verticillium</u>	<u>Lint % Boll Size Grams/ Boll</u>		
	1960	1959 ^a	1960	1959 ^a	Rank		<u>Blight</u>	<u>Wilt</u>			
						Rating ^b	Incid. ^c	% ^d			
1. Rex	1106	1040	865	776	1	78	R	1.0	17.5	35.4	7.2
2. Stoneville 7	1068		640		8	60	S	3.3	31.4	37.6	6.5
3. Mo. 58-449	999		802		2	80	S	4.0	26.0	35.2	7.4
4. Deltapine-SL	972		592		15	61	S	3.3	32.9	38.3	6.4
5. Lankart 57	946		680		5	72	S	4.0	31.6	36.8	9.1
6. Fox 4	938	1036	543	833	18	58	S	4.0	38.6	36.1	6.7
7. Mo. 58-463	934		636		9	68	S	4.0	26.1	34.9	7.3
8. Mo. 58-432	927		695		4	75	S	4.0	26.9	35.6	6.9
9. Stoneville 3202	917		650		7	71	S	4.0	51.1	37.7	6.4
10. Dixie King 6	904		518		20	57	S	4.0	31.0	35.9	8.2
11. Deltapine 15	898		493		21	55	S	3.0	31.2	37.0	6.3
12. Mo. 58-1750	894		600		14	67	S	3.7	30.4	34.7	6.7
13. Mo. 58-150	892	1074	663	948	6	74	S	4.0	39.0	34.6	6.6
14. Stardel	881		625		10	71	S	4.0	58.3	38.1	5.7
15. Auburn 56	873		539		19	62	S	4.0	41.3	35.2	6.9
16. Mo. 58-138	873	1147	604	995	13	69	S	3.7	38.1	35.5	6.7
17. Dixie King	867		558		17	64	S	4.0	27.0	35.9	8.2
18. Coker 124	864		489		22	57	S	4.0	40.0	34.9	6.5

TABLE 9 (continued)

Variety or Strain	<u>Total Lint Yields</u>		<u>Earliness</u>			<u>Disease Reaction</u>					
	<u>Lbs/Acre</u>		<u>Lint-1st Pick</u>			<u>Bacterial Blight</u>		<u>Verticillium Wilt</u>		<u>Lint</u>	<u>Boll</u>
	1960	1959 ^a	1960	1959 ^a	Rank	% of Crop	Rating ^b	Incid. ^c	% ^d	%	Grams/ Boll
19. Empire WR	856		581		16	68	S	3.7	22.3	34.5	8.1
20. Mo. 58-140	846	1054	625	992	11	74	S	4.0	49.9	35.3	6.5
21. Mo. 58-141	797	1038	615	911	12	77	S	4.0	44.0	35.5	7.1
22. Delfos 9169	760	1042	483	778	23	64	S	4.0	53.5	33.7	7.3
23. Coker 100A (WR)	758		359		25	47	S	4.0	33.2	35.8	6.1
24. Acala 4-42	634		428		24	67	S	5.0	38.1	37.4	7.8
Mean	896	604	604					3.8	55.6	35.9	7.0
Min. M. D. (.05) ^e	120	79	149	144						.9	
Max. M. D. (.05)	148	100	185	180						1.2	

^aSikeston, sandy wilt-free soil. ^bR: resistant; S: susceptible. ^c0-1: trace; 2: mild infection; 3: moderate; 4: severe; 5: very severe. ^dPercent of plants showing wilt symptoms by August 30. ^eDuncan's Multiple Range Tests, minimum and maximum mean differences required for significance.

Soil type: sandy loam. Date planted: May 9. Fertilizer: 390 pounds 15-15-15 sidedressed May 24. Irrigation: None. Date 1st Pick: September 29.

TABLE 10. FIBER PROPERTIES AND .6 POUND SPINNING TEST VALUES FOR COTTON VARIETIES AND NEW STRAINS GROWN ON A SANDY LOAM SOIL, PORTAGEVILLE, 1960

Variety or Strain	Length				Fineness	Spinning Performance	
	Staple 1/32	U. H. M.	M.	Unif. Ratio		Standard Skein ^a	Manufacturing Performance ^b
	Inches	Inches	Inches	%	Micronaire	Break Lbs.	
1. Rex	36.0	1.13	.93	82	3.97	111.0	100
2. Stoneville 7	35.7	1.16	.98	84	4.57	123.5	100
3. Mo. 58-449	35.7	1.13	.96	85	3.95	125.0	100
4. Deltapine-SL	36.3	1.19	1.02	86	4.47	126.5	100
5. Lankart	35.7	1.10	.94	85	4.55	106.5	100
6. Fox 4	36.3	1.16	1.00	86	4.79	128.0	100
7. Mo. 58-463	35.3	1.12	.97	87	4.02	118.5	100
8. Mo. 58-432	35.3	1.12	.95	85	4.23	118.0	100
9. Stoneville 3202	35.3	1.09	.94	86	4.40	110.0	100
10. Dixie King 6	36.0	1.16	.98	84	4.42	132.0	100
11. Deltapine 15	36.0	1.16	.98	84	4.33	128.0	100
12. Mo. 58-1750	36.3	1.17	1.01	86	4.51	123.0	100
13. Mo. 58-150	35.7	1.11	.94	85	4.40		
14. Stardel	36.0	1.15	.99	86	4.54	127.0	100
15. Auburn 56	36.3	1.12	.96	86	4.23	118.5	100
16. Mo. 58-138	35.7	1.13	.97	86	4.87		

TABLE 10 (continued)

Variety or Strain	Length				Fineness	Spinning Performance	
	Staple	U. H. M.	M.	Unif.		Standard	Manufacturing
	1/32			Ratio	Micronaire	Skein ^a Break Lbs.	Performance ^b
17. Dixie King	36.0	1.15	.96	83	4.14	122.5	100
18. Coker 124	36.0	1.18	.99	84	4.29	125.0	100
19. Empire	36.0	1.16	.96	83	3.64	131.5	100
20. Mo. 58-140	36.0	1.11	.96	86	4.50		
21. Mo. 58-141	35.7	1.11	.94	85	4.48		
22. Delfos 9169	36.7	1.23	.99	80	4.01	119.5	100
23. Coker 100 A	37.0	1.16	.96	83	3.88	122.5	100
24. Acala 4-42	36.0	1.10	.97	88	3.91	142.5	100
Mean	35.9	1.12	.97	87	4.29	123.0	100
Min. M. D. (.05)		.04	.04		.40	11.0	
Max. M. D. (.05)		.05	.05		.48	12.9	

^aThe greater the number, the better the spinning performance.

^bManufacturing performance; 100: good; less than 100: reduced performance.

TABLE 11. LINT YIELDS AND OTHER CHARACTERISTICS FOR COTTON VARIETIES AND NEW STRAINS GROWN ON FUSARIUM WILT AND ROOT-KNOT INFESTED SOILS AT DIEHLSTADT, 1960

Variety or Strain	Total Lint Yields			Earliness					Disease Reaction			Lint %	Boll Size Grams/ Boll
	Lbs/Acre			Lint-1st Pick Lbs/Acre					Bacterial Blight	Fusarium Wilt			
	1960	1959	Avg.	1960	1959	Avg.	Rank	% of Crop	Rating ^a	Incid. ^b	% ^c		
1. Mo. 58-432	731	947	839	555	789	672	1	76	S	3.7	4.5	36.7	7.1
2. Mo. 58-463	711	860	786	528	664	596	2	74	S	4.0	4.2	35.9	7.8
3. Mo. 58-449	602	990	796	497	833	665	3	83	S	3.7	6.6	36.5	6.5
4. Auburn 56	589	894	742	446	659	553	5	76	S	4.0	5.7	35.9	6.4
5. Rex	577	856	717	460	697	579	4	80	R	0.3	7.0	37.4	6.8
6. Dixie King 6	541			423			6	78	S	2.7	19.3	37.2	7.6
7. Mo. 58-1750	468			404			7	86	S	2.7	16.8	36.0	6.1
8. Fox 4	401			298			8	74	S	2.3	26.9	37.1	6.5
9. Coker 124	392			279			9	71	S	3.0	19.3	36.4	6.0
10. Stoneville 7	281			193			10	69	S	2.0	47.7	39.0	5.9
11. Mo. 58-140	205			174			11	84	S	2.7	50.6	35.5	5.7
12. Delfos 9169	187			105			13	56	S	2.0	52.8	34.2	6.3
13. Mo. 58-321	132			111			12	84	S	1.7	61.2	37.2	4.9
14. Deltapine-SL	101			91			14	90	S	1.7	60.8	37.9	5.2
15. Deltapine 15	88	390	239	71	325	198	16	81	S	2.0	68.1	38.6	5.4
16. Mo. 58-138	81			73			15	90	S	2.3	79.1	35.5	5.5
Mean	381			295				77		2.5	33.2	36.7	6.2
Min. M. D. (.05)	136	109		111	95							.8	
Max. M. D. (.05)	164	139		134	118							.9	

^aR: resistant; S: susceptible. ^b0.1: trace; 2: mild infection; 3: moderate; 4: severe; 5: very severe. ^cPercent of plants dead or showing wilt symptoms by August 29.

Soil type: sand. Date Planted: April 22. Fertilizer: 655 lbs. 15-15-15 sidedressed, 1/3 May 12, 1/3 June 24, 1/3 July 18. Irrigations: 5. Date 1st Pick: September 30.

TABLE 12-FIBER PROPERTIES AND .6 POUND SPINNING VALUES FOR COTTON VARIETIES AND NEW STRAINS GROWN ON FUSARIUM WILT AND ROOT-KNOT INFESTED SOILS AT DIEHLSTADT, 1960.

Variety or Strain	Length				Strength		Fineness	Spinning Performance	
	Staple 1/32	U. H. M.	M.	Unif. Ratio	Tenac- ity	Elon- gation		Standard	Manufacturing
	Inches	Inches	Inches	%	T ₁	E ₁	Micronaire	Skein Break Lbs.	Performance
1. Mo. 58-432	34.7	1.10	.94	85	1.66	9.1	4.22	110	100
2. Mo. 58-463	35.0	1.09	.93	85	1.73	9.4	4.18	110	100
3. Mo. 58-449	34.7	1.09	.93	85	1.78	8.1	4.19	116	100
4. Auburn 56	36.3	1.11	.95	86	1.68	8.3	4.44	116	100
5. Rex	35.0	1.11	.92	83	1.59	8.8	4.21	108	100
6. Dixie King 6	35.3	1.11	.95	86	1.76	7.8	4.77	114	100
7. Mo. 58-1750	35.3	1.13	.95	84	1.63	9.4	4.55		
8. Fox 4	34.3	1.12	.98	88	1.79	7.7	4.82		
9. Coker 124	35.0	1.11	.93	84	1.74	8.5	4.47		
10. Stoneville 7	34.3	1.08	.92	85	1.63	8.4	4.65		
11. Mo. 58-140	35.0	1.08	.91	84	1.73	8.3	4.04		
12. Delfos 9169	35.3	1.16	.97	84	1.67	8.9	3.96		
13. Mo. 58-321	35.0	1.12	.96	86	1.90	7.6	4.22		
14. Deltapine-SL	34.7	1.08	.88	81	1.80	9.3	4.02		
15. Deltapine 15	35.0	1.06	.87	82	1.92	9.1	3.79		
16. Mo. 58-138	34.7	1.07	.88	82	1.73	7.6	4.11		
Mean	35.0	1.10	.93	85	1.73	8.5	4.29		
Min. M.D. (.05)		.05	n. s.		.11	1.1	.47		
Max. M.D. (.05)		.06	n. s.		.13	1.3	.56		

TABLE 13-AVERAGE FIBER PROPERTIES OF COTTON VARIETIES AND NEW STRAINS GROWN ON FUSARIUM WILT AND ROOT-KNOT INFESTED SOILS AT DIEHLSTADT, 1959-60

Variety or Strain	Length				Strength		Fineness	Spinning Performance	
	Staple 1/32	U. H. M.	M.	Unif. Ratio	T ₁	E ₁	Micronaire	Standard	Manufacturing
	Inches	Inches	Inches	%				Skein Break	Performance
								Lbs.	
1. Mo. 58-432	34	1.11	.94	85	1.72	8.9	4.1	113.0	100
2. Mo. 58-463	35	1.09	.91	83	1.73	8.9	4.1	115.0	100
3. Mo. 58-449	34	1.08	.91	84	1.76	8.2	4.2	117.0	100
4. Auburn 56	35	1.09	.93	85	1.73	8.8	4.3	116.0	100
5. Rex	35	1.10	.92	84	1.61	8.8	4.1	109.0	100

TABLE 14-LINT YIELDS AND OTHER CHARACTERISTICS FOR COTTON VARIETIES AND NEW STRAINS GROWN ON VERTICILLIUM WILT INFESTED SOILS AT SIKESTON, 1960.

Variety or Strain	Total Lint Yields			Earliness				Disease Reaction			Lint %	Boll Size Grams/ Boll	
	Lbs/Acre			Lint-1st Pick				Bacterial	Verticillium				
	a			Lbs/Acre				Blight	Wilt				
	1960	1959	Avg.	1960	1959	Avg.	Rank	% of Crop	b Rating	Incid.	c %	%	
1. Stoneville 7	911			671			5	74	S	Trace	61.3	37.4	6.4
2. Mo. 58-321	864	742	803	758	742	750	2	88	S	Trace	42.4	36.8	6.9
3. Mo. 58-432	856			764			1	89	S	Trace	48.9	35.8	7.0
4. Dixie King 6	831			640			8	77	S	Trace	47.8	36.1	7.6
5. Rex	810	784	797	722	784	753	3	89	R	Trace	51.7	35.6	7.3
6. Deltapine 15	806	543	675	606	543	575	9	75	S	Trace	40.4	37.0	6.3
7. Fox 4	799			671			6	84	S	Trace	61.9	36.4	6.2
8. Mo. 58-1750	795			720			4	91	S	Trace	55.7	34.6	6.4
9. Mo. 58-449	778			650			7	84	S	Trace	48.9	35.5	6.8
10. Deltapine-SL	751			562			12	75	S	Trace	49.4	37.1	5.7
11. Coker 124	743			548			13	74	S	Trace	55.8	34.6	6.9
12. Mo. 58-138	690			546			14	79	S	Trace	71.9	35.2	6.4
13. Mo. 58-463	678	819	749	571	819	695	11	84	S	Trace	49.0	35.1	7.1
14. Auburn 56	646			504			15	78	S	Trace	64.6	34.8	6.2
15. Mo. 58-140	625			581			10	93	S	Trace	83.2	34.7	6.0
16. Delfos 9169	548	304	426	321	304	313	16	59	S	Trace	58.8	32.7	7.1
Mean	758			615				81			55.7	35.6	6.7
Min. M. D. (.05)	175	109		175	109							.9	
Max. M. D. (.05)	210	133		210	133							1.1	

^a1959 at Dorena, Mo., 1st picking only. ^bR: resistant; S: susceptible. ^cpercent of plants showing wilt symptoms by August 29. Soil type: clay loam. Date Planted: April 27. Fertilizer: 340 lbs. 15-15-15 sidedressed, May 17, Irrigations: None. Date 1st pick: October 8th.

TABLE 15-FIBER PROPERTIES AND .6 POUND SPINNING VALUES FOR COTTON VARIETIES AND NEW STRAINS GROWN ON VERTICILLIUM WILT INFESTED SOILS AT SIKESTON, 1960.

Variety or Strain	Length			Strength			Fineness	Spinning Performance	
	Staple	U.H.M.	M.	Unif.	Tenac-	Elon-		Standard Skein Break	Manufac- turing Perfor- mance
	<u>1/32</u>			<u>Ratio</u>	<u>ity</u>	<u>gation</u>	Micronaire		
	Inches	Inches	Inches	%	T ₁	E ₁			
1. Stoneville 7	37.3	1.17	1.00	85	1.80	7.4	4.85		
2. Mo. 58-321	36.7	1.18	.99	84	1.97	7.1	4.69	124	100
3. Mo. 58-432	36.7	1.14	.97	85	1.82	7.7	4.03	117	100
4. Dixie King 6	37.0	1.16	.97	84	1.78	6.4	4.40		
5. Rex	36.7	1.14	.93	82	1.65	6.8	3.94	111	100
6. Deltapine 15	37.3	1.16	.93	80	1.80	8.3	3.92		
7. Fox 4	37.0	1.15	.99	86	1.77	7.3	4.67		
8. Mo. 58-1750	36.7	1.15	.95	83	1.70	8.1	4.07		
9. Mo. 58-449	37.0	1.14	.96	84	1.84	7.3	4.09	119	100
10. Deltapine-SL	37.7	1.18	.96	81	1.89	8.7	4.14		
11. Coker 124	37.3	1.16	.95	82	1.76	7.1	4.24		
12. Mo. 58-138	37.0	1.18	1.00	85	1.76	7.5	4.75		
13. Mo. 58-463	36.7	1.13	.95	84	1.86	7.6	4.05		
14. Auburn 56	36.7	1.13	.94	83	1.77	7.6	4.37	121	100
15. Mo. 58-140	37.0	1.12	.94	84	1.81	7.7	4.25		
16. Delfos 9169	38.0	1.23	.99	80	1.82	7.5	3.86		
Mean	37.0	1.16	.96	83	1.80	7.5	4.27		
Min. M.D. (.05)		.03	n.s.		.08	.5	.40		
Max. M.D. (.05)		.03	n.s.		.09	.6	.48		

TABLE 16-FIBER PROPERTIES OF COTTON VARIETIES AND NEW STRAINS GROWN ON VERTICILLIUM WILT-INFESTED SOILS 1959-60.

Variety or Strain	Length				Strength		Fineness	Spinning Performance			
	Staple <u>1/32</u>	U. H. M.	M.	Unif. Ratio	T ₁	E ₁	Micronaire	Standard Skein Break		Manufactur- ing Performance	
	Inches	Inches	Inches	%				Lbs.	Avg.		
1. Mo. 58-321	36	1.18	1.01	86	1.96	7.3	4.6	125	124	124.5	100
2. Rex	36	1.12	.92	82	1.63	7.0	3.9	112	111	111.5	100
3. Deltapine 15	36	1.14	.94	82	1.79	8.5	3.9	121			100
4. Mo. 58-463	36	1.11	.93	84	1.82	8.1	4.1	117	121	119.0	100
5. Delfos 9169	37	1.18	.93	79	1.77	7.8	3.8				

TABLE 17-LINT YIELDS AND OTHER CHARACTERISTICS FOR COTTON VARIETIES
AND NEW STRAINS GROWN AT BRAGG CITY, 1960.

Variety or Strain	Total Lint Yields ^a	Lint	Boll Size
	Lbs/Acre	%	Grams/Boll
1. Mo. 58-141	474	36.2	6.5
2. Rex	462	36.6	6.6
3. Mo. 58-449	426	35.5	6.2
4. Mo. 58-140	416	34.9	5.9
5. Mo. 58-1750	378	35.8	6.0
6. Mo. 58-432	359	36.5	5.9
7. Fox 4	352	35.7	6.0
8. Mo. 58-463	325	35.5	6.2
9. Auburn 56	321	35.9	6.1
10. Mo. 58-138	304	35.6	6.2
11. Dixie King 6	294	37.1	7.3
12. Deltapine 15	267	37.9	6.0
13. Deltapine - SL	237	38.6	5.6
14. Stoneville 7	231	38.2	5.7
15. Coker 124	203	36.6	6.0
16. Delfos 9169	166	34.1	6.5
Mean	323	36.3	6.2
Min. M.D. (.05)	105	.8	
Max. M.D. (.05)	128	1.0	

^aFirst picking only.

Soil type: Clay - "Gumbo." Date planted: May 25. Fertilizer: 315 lbs. 15-15-15
May 31 plus 180 lbs. ammonia nitrate, July 7 sidedressed. Irrigations: 2. Date 1st
pick: October 18.

TABLE 18—FIBER PROPERTIES OF COTTON VARIETIES AND NEW STAINS GROWN AT BRAGG CITY, 1960.

Variety or Strain	Length			Unif. Ratio %	Strength		Fineness
	Staple 1/32	U. H. M.	M.		Tenac- ity T ₁	Elon- gation E ₁	Micronaire
	Inches	Inches	Inches				
1. Mo. 58-141	36.7	1.11	.92	83	1.82	8.9	4.49
2. Rex	36.7	1.18	.97	82	1.77	7.9	4.16
3. Mo. 58-449	37.0	1.16	.97	84	1.92	7.8	4.11
4. Mo. 58-140	36.3	1.14	.95	83	1.82	7.6	4.30
5. Mo. 58-1750	36.0	1.14	.97	85	1.82	8.0	4.45
6. Mo. 58-432	36.3	1.15	.99	86	1.86	8.8	4.24
7. Fox 4	36.3	1.18	1.03	87	1.90	7.6	4.89
8. Mo. 58-463	36.7	1.14	.97	85	1.91	8.2	4.31
9. Auburn 56	36.7	1.15	.99	86	1.93	8.2	4.38
10. Mo. 58-138	36.3	1.16	.99	85	1.94	7.8	5.10
11. Dixie King 6	36.3	1.15	.98	85	1.92	6.5	4.83
12. Deltapine 15	36.3	1.16	.97	84	1.91	8.6	4.78
13. Deltapine-SL	36.7	1.17	.98	84	1.86	9.1	5.06
14. Stoneville 7	36.7	1.17	1.00	85	1.81	7.8	5.08
15. Coker 124	37.3	1.20	1.01	84	1.92	8.1	4.46
16. Delfos 9169	37.0	1.25	1.03	82	1.96	8.1	4.28
Mean	36.6	1.16	.92	79	1.88	8.1	4.56
Min. M. D. (.05)		.03	n. s.		.10	.6	.18
Max. M. D. (.05)		.03	n. s.		.11	.7	.21

TABLE 19-AVERAGE LINT YIELDS FOR COTTON VARIETIES GROWN IN SOUTHEAST MISSOURI, 1958-60.

Variety or Strain	1960					1958-60		
	Total Lint Yield Lbs/Acre	Earliness		Disease Reaction		Total Lint Yield Lbs/Acre	Earliness	
		Lint - 1st Pick		Bacterial	Wilt		Lint - 1st Pick	
		Lbs/Acre	Rank				Blight	Index
1. Rex	739	627	1	R	49.6	752	626	1
2. Mo. 58-432	718	593	2	S	48.9			
3. Mo. 58-449	702	591	3	S	51.8			
4. Mo. 58-463	662	515	5	S	46.6			
5. Dixie King 6	643	469	6	S	56.5			
6. Mo. 58-1750	634	525	4	S	73.0			
7. Stoneville 7	623	434	10	S	104.6			
8. Fox 4	622	466	7	S	84.7	640	501	3
9. Auburn 56	607	453	8	S	59.9	687	532	2
10. Coker 124	550	380	12	S	69.5			
11. Mo. 58-140	523	449	9	S	126.3			
12. Deltapine-SL	515	370	13	S	107.2	579	444	4
13. Deltapine 15	515	369	14	S	101.0	531	397	5
14. Mo. 58-138	587	382	11	S	147.5			
15. Delfos 9169	415	269	15	S	121.2	529	390	6
Mean	578	445				620	482	

^aBacterial blight, R: - resistant; S: - susceptible.

^bWilt Index: - total percent plants showing wilt symptoms (fusarium wilt % at Diehlstast, August 30 plus verticillium wilt % at Portageville, August 5 plus verticillium wilt %, Sikeston, August 8).