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Cotton experiments, 1925 - fertilizers and varieties : central station

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INDEXED
Division of Horticulture Catalog

Cotton Experiments
1925

FERTILIZERS AND VARIETIES

CENTRAL STATION

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COTTON EXPERIMENTS, 1925

FERTILIZERS AND VARIETIES

J. F. O'KELLY AND W. W. HULL (1)

RECOMMENDATIONS

The results of fertilizer and variety experiments conducted by the Central Station, A. & M. College, and reported in this and previous publications seem to justify the following recommendations for cotton production in east central Mississippi.

Acid phosphate should be used on all soils of east central Mississippi which are considerably worn from much cropping. Even in the prairie section liberal quantities of acid phosphate will pay if accompanied by the right proportion of nitrogen. At present, results indicate that the right proportion is eight parts phosphoric acid to six parts nitrogen.

Nitrogen is needed by nearly all the soils of this section and should be used in the right proportion with acid phosphate, and potash if needed, for most profitable returns.

Where cotton rusts to any considerable extent year after year, the use of potash will be as certainly profitable as the use of any other fertilizer under any condition. Where cotton does not rust and only moderate quantities of other fertilizers are being used, the economy of potash application is questionable. Where more than 600 pounds to the acre of a mixture of acid phosphate and a nitrogen carrier is being used, the use of potash will very probably be profitable.

Therefore, it is desirable to use a mixture of 8 parts phosphoric acid, 6 parts nitrogen, and 4 parts potash where cotton rusts or where more than 600 pounds to the acre is being used. It is possible that the results of future experiments will justify an increase in the proportion of nitrogen.

A ready mixed fertilizer can be used provided the nitrogen is readily soluble or, the proper mixture can be approximated by mixing 400 pounds acid phosphate, 300 pounds nitrate of soda, and 65 pounds sulphate of potash. If ammonium sulphate is preferred, use 225 pounds instead of 300 pounds of nitrate of soda. If 12% kainit is the source of potash use 260 pounds instead of 65 pounds sulphate of potash.

Potash may be omitted from the mixture just recommended if cotton does not rust and a light application is being used.

The quantity of fertilizer used should, in nearly all cases, be 600 pounds or more to the acre. The rate to be used will be affected by the natural fertility of the soil, the previous fertilization practiced, and the preceding crops.

There are more than a half dozen well bred cotton varieties which are well adapted to east central Mississippi.

As a rule, the pounds of lint to the acre which a variety will produce should be given considerable weight in the selection of a variety. This will usually give preference to those varieties having a staple length of less than 1½ inch. However, if the grower's marketing system enables him

(1) Roland Cowart, now doing graduate work at the University of Illinois, assisted in collecting much of the data presented in this publication, particularly the results of cooperative fertilizer experiments.

to obtain an adequate premium for extra staple the growing of a staple variety on the more fertile soils of the hill section may be justified.

Vigorous growing varieties should, as a rule, be chosen for thin hill lands. Dwarf varieties are seldom satisfactory on such soils except during wet seasons with heavy weevil infestation, the occurrence of which no one can accurately predict. Dwarf varieties are best adapted to fertile bottoms where earliness is needed and stamina is not an important consideration. The reader is urged to give careful consideration to average results reported in table 4 as well as the tables which follow.

Table 1—Average results of tests in Oktibbeha County on station farm and farm of G. G. Wofford—1925

Pounds of material applied to the acre			Formula	Pounds Seed Cotton Per Acre		Dollars per Acre		
Acid Phos.	Nitrate of Soda	Sul. of Potash		Average	Increase	Increase at 7 cts.	Cost of Fertilizer	Net Gain
No fertilizer				534.0				
300	150	100	8-4-8	877.3	343.3	24.03	9.27	14.76
300	150	75	8-4-6	978.0	444.0	31.08	8.65	22.43
300	150	50	8-4-4	887.4	353.4	24.74	8.02	16.72
No fertilizer				534.0				
300	150	25	8-4-2	815.1	281.1	19.68	7.40	12.28
300	150	none	8-4-0	622.3	88.3	6.18	6.77	—5.59
300	300	50	8-8-4	1009.6	475.6	33.29	12.14	21.15
No fertilizer				534.0				
300	225	50	8-6-4	967.3	433.3	30.33	10.08	20.25
225	150	50	6-4-4	870.8	336.8	23.58	7.36	16.22
150	150	50	4-4-4	791.0	257.0	17.99	6.70	11.29
No fertilizer				534.0				
600	300	100	8-4-4	1319.2	785.2	54.96	16.04	38.92
900	450	150	8-4-4	1318.1	784.1	54.89	24.06	30.83
1200	600	200	8-4-4	1262.2	728.2	50.97	32.08	18.89
No fertilizer				534.0				

NOTE—The materials applied to the last three fertilized plots supply approximately as much plant food to the acre as would be supplied by 1200, 1800 and 2400 pounds respectively, of 8-4-4 mixed fertilizer. All other treatments were based on 600 pounds of mixed fertilizer of the formulas indicated.

Early in 1925 the experiment stations of Mississippi started a number of new cotton fertilizer tests on nearly all soil types of the state. These tests were planned to give more definite information as to the most profitable proportions and rates of cotton fertilizers. The results of these tests in Oktibbeha, Choctaw and Lowndes Counties together with the results of tests already under way at the Central Station are reported in the first part of this publication, the last part being devoted to comparisons of standard and new cotton varieties.

FERTILIZERS

The new experiments planned for the several soil types of the state include varying quantities of acid phosphate, nitrate of soda, sulphate of potash, and a complete fertilizer. That is, while acid phosphate and nitrate

of soda were applied at constant rates to several plots the rate of potash was varied. While the rate for nitrate of soda was being varied the other two fertilizers were applied at a uniform rate. The same was true in the case of acid phosphate. All the rates just mentioned were based on 600 pounds of mixed fertilizer to the acre. Then, a mixture analyzing approximately 8% phosphoric acid, 4% ammonia, and 4% potash was applied at the rate of 600, 1200, 1800 and 2400 pounds to the acre. A study of tables 1 and 2 will make this explanation better understood.

All fertilizers in all tests reported here were applied before planting and a member of the experiment station staff supervised the application of the fertilizers and picking in every case.

Cut 1

Pounds material applied to acre			Average per acre of increase for different amounts of potash,												
Acid phos.	Nit. soda	Sul. Potash	Average of three tests in Choctaw County												
			2	4	6	8	10	12	14	16	18	20	22	24	26
			8-4-8												\$25.16
300	150	100	8-4-6												\$25.63
300	150	75	8-4-4												\$20.95
300	150	50	8-4-2												\$23.66
300	150	25	8-4-0												\$23.32
300	150	00													
			Average of two tests in Oktibbeha County												
300	150	100	8-4-8												\$14.76
300	150	75	8-4-6												\$22.43
300	150	50	8-4-4												\$16.72
300	150	25	8-4-2												\$12.28
300	150	00	8-4-0												
300	150	00	\$0.59 Loss												

Two of the experiments just described were successfully completed in Oktibbeha County and average results are reported in table 1. One of these tests was on the experiment station farm at A. & M. College. The soil is classed as Ocklocknee loam. The other test was on the farm of G. G. Wofford about nine miles northwest of Starkville. The soil is classed as Oktibbeha silt loam. Neither of these soils was originally extremely fertile and both have been considerably depleted thru cropping. Rust damage was moderate to severe in both tests.

The most outstanding feature of these Oktibbeha County tests is the results obtained from the use of potash. These potash results are given in table 1 and are presented graphically in the lower half of cut 1. It will be observed that except in one case, the value of the increase was less as the percentage of potash was lowered and that where no potash was used the value of the increase was not sufficient to pay for the other fertilizers used.

These results also indicate that the proportion eight parts phosphoric acid to four parts nitrogen is too low in nitrogen. It will be seen from table 1 and the lower half of cut 2 that equal parts phosphoric acid and

Table 2—Average results of tests in Choctaw County on farms of J. C. Cork, Clyde Coleman and J. B. Ray—1925

Pounds of material applied to the acre			Formula	Pounds Seed Cotton Per Acre		Dollars per Acre		
Acid Phos.	Nitrate of Soda	Sul. of Potash		Average	Increase	Increase at 7 cts.	Cost of Fertilizer	Net Gain
No fertilizer				843.6				
300	150	100	8-4-8	1335.5	491.9	34.43	9.27	25.16
300	150	75	8-4-6	1333.3	489.7	34.28	8.65	25.63
300	150	50	8-4-4	1257.4	413.8	28.97	8.02	20.95
No fertilizer				843.6				
300	150	25	8-4-2	1287.3	443.7	31.06	7.40	23.66
300	150	none	8-4-0	1273.5	429.9	30.09	6.77	23.32
300	300	50	8-8-4	1467.1	623.5	43.65	12.14	31.51
No fertilizer				843.6				
300	225	50	8-6-4	1551.7	708.1	49.57	10.08	39.49
225	150	50	6-4-4	1386.2	542.6	37.98	7.36	30.62
150	150	50	4-4-4	1297.7	454.1	31.79	6.70	25.09
No fertilizer				843.6				
No fertilizer				895.6				
600	300	100	8-4-4	1634.0	738.4	51.69	16.04	35.65
900	450	150	8-4-4	1838.2	942.6	65.98	24.06	41.92
1200	600	200	8-4-4	1916.3	1020.7	71.45	32.08	39.37
No fertilizer				895.6				

NOTE—The materials applied to the last three fertilized plots supply approximately as much plant food to the acre as would be supplied by 1200, 1800 and 2400 pounds respectively, of an 8-4-4 mixed fertilizer. All other treatments were based on 600 pounds of mixed fertilizer of the formulas indicated.

nitrogen gave the greatest returns in these trials. Other tests indicate that a ratio of eight to six between phosphoric acid and nitrogen is most profitable. It is the opinion of the writers that the proportion of nitrogen should not be lower than the latter.

The gains obtained from the use of phosphoric acid were more consistent than usual. With an increasing percentage of this material the net profits increased slightly.

An 8-4-4 mixture when used at the rate of 1200 pounds to the acre gave a greater net value than when used in smaller or greater quantities. During the very severe drouth the thrifty condition of the plants on heavily fertilized plots presented a very decided contrast with those on plots receiving little or no fertilizer.

Three experiments were completed in Choctaw County similar to those reported for Oktibbeha County. The first was on the farm of J. C. Cork south of Ackerman, the second on the farm of Clyde Coleman east of Weir, and the third on the farm of J. B. Ray northwest of Weir. The soil on all of these farms is typical of the sandy soils of the short leaf pine area. Average results of these three tests are given in table 2.

In these Choctaw County tests no appreciable amount of rust was evident during the growing season and the results from the use of potash contrast markedly with those obtained from similar tests in Oktibbeha County where rust was moderate to severe. It will be seen from a study of table 2 and the first half of cut 1 that the value of 600 pounds of fertilizer was not materially improved by the addition of potash.

Cut 2

Pounds material applied to acre			Value per acre of increase for different amounts of nitrogen, rates of other fertilizers being constant												
Acid phos.	Nit. soda	Sul. potash	Average of three tests in Choctaw County												
			3	6	9	12	15	18	21	24	27	30	33	36	39
			8-8-4												
300	300	50	[REDACTED]											\$31.51	
			8-6-4												
300	225	50	[REDACTED]											\$39.49	
			8-4-4												
300	150	50	[REDACTED]											\$20.95	
			Average of two tests in Oktibbeha County												
			8-8-4												
300	300	50	[REDACTED]											\$21.15	
			8-6-4												
300	225	50	[REDACTED]											\$20.25	
			8-4-4												
300	150	50	[REDACTED]											\$16.72	

All three Choctaw County tests indicated that 6% nitrogen is more profitable than either 8% or 4%. Ultimately, it may be proved that equal parts of nitrogen and phosphoric acid should be used. At present it seems safe to conclude that there should be at least 6 parts nitrogen to 8 parts phosphoric acid. Cut 2 presents the nitrogen results from the tests in the two counties.

When the rate per acre of an 8-4-4 mixture was varied 1800 pounds to the acre gave a greater net return than any other rate and 2400 pounds gave a greater net return than 1200 pounds. It is entirely possible that future trials will indicate that 800 to 1200 pounds to the acre of the right mixture is not only safe and profitable but also a necessity on all of the thin soils of east central Mississippi.

For some time many have believed that nitrogen is profitable when used in cotton production in the prairie section of Mississippi but many have doubted the wisdom of the use of phosphoric acid and potash. With the object of establishing a basis from which to work the experiment station planned a simple test for the prairie soils. The nature of this test can be

only 67 cents to the acre. This is disappointing and is very probably much lower than can ordinarily be expected. It is possible too that a smaller quantity of soda would have done as well when used alone thus saving the cost of the excess nitrogen to be added to the net value per acre.

While a few farmers have for some time used acid phosphate in the prairie section with apparent profit a great many experiments with this material have given negligible and often negative results. This failure to obtain consistent gains from the use of phosphate on the lime soils of the prairie section has sometimes been explained by saying that these soils were able to supply all the phosphorus the plant needed. Others have maintained that, altho these soils might be deficient in phosphorus, applications of this material were seized by the lime and held in a form unavail-

Cut 4

Pounds material applied to acre			Average results of four tests in Lowndes County - 1925												
Acid phos.	Nit. soda	Sul. potash	Net value of increase per acre												
			2	4	6	8	10	12	14	16					
	300		\$0.67												
600	300	75												\$10.99	
600	300							\$6.31							
	300	75					\$4.35								
			Pounds increase seed cotton per acre												
			50	100	150	200	250	300	350	400					
	300						127.4								
600	300	75													377.1
600	300													283.4	
	300	75								205.9					

able to the plant. The first of these explanations has been exploded and the second deserves less consideration than has been given it. Four tests on prairie soils varying from thin red post oak to fertile black bottoms showed consistent increases from the use of a liberal application of acid phosphate when balanced with a reasonable proportion of nitrogen.

What has been said elsewhere about the use of potash in other sections of the state can be repeated here for the prairie soils. Where cotton rusts or where more than 600 pounds of fertilizer is being used on an acre use 50 pounds or more of sulphate of potash to the acre. Where cotton does not rust and less than 600 pounds to the acre of other fertilizer is being used potash probably will not be profitable.

During the season just past a comparison between sulphate of potash and kainit for rust control was made on the experiment station farm. The net value of the increase produced by 50 pounds sulphate of potash was \$24.00 per acre and that produced by 200 pounds kainit was \$23.00 per

acre. Since this is only one test the difference may be attributed to error and these potash carriers may be considered equally efficient. So far as is known muriate of potash is as efficient as the two carriers just discussed.

VARIETIES

Variety experiments covered trials with 45 standard and new varieties during the season of 1925. These tests included a test of standard varieties, one of standard and new varieties, and a test for wilt resistant varieties. Several varieties were included in more than one test.

Table 4—Nine types of cotton at the Central Station

Year	POUNDS LINT COTTON PER ACRE								
	Half & Half	Cook	Cleve. 54	Cleve. Wan.	Cleve. Pied.	Sals-bury	Trice	Miller	Delfos
1921	589.1	555.0	552.9	554.1	571.3	425.6	470.3	497.3	443.2
1922	299.1	334.2	315.6	249.8	302.7	257.3	279.0	320.3	262.8
1923	321.3	303.5	344.4	251.6	348.3	285.1	396.5	323.8	368.9
1924	369.9	397.6	397.6	379.5	394.6	342.9	337.6	377.9	306.9
1925	629.5	613.2	615.4	553.3	557.0	520.5	461.3	597.3	460.6
Av. lb.	441.8	440.7	445.2	397.7	434.8	366.3	388.9	423.3	368.5
Av. value	\$103.79	\$107.69	\$114.73	\$ 97.79	\$112.36	\$110.62	\$116.31	\$119.24	\$117.17
Av. length	3-4 s	7-8 s	15-16	7-8 s	15-16 s	1 1-8 s	1 1-16	1 1-16	1 3-16s
Av. p'centage	42.6	39.0	35.4	37.6	35.0	33.1	31.7	34.3	32.4

The growing season was even drier than in 1924. Many readers will not need to be cautioned against giving too much weight to variety results covering one year only but, for the benefit of others, it may be well to repeat this warning especially after a season so abnormal in its effects on cotton production as the one just past.

Five year average results for several varieties are presented in table 4. This is probably the most dependable guide for the choice of a variety in east Mississippi. Willis and D. & P. L. No. 4 are not included in this table because they have not been in the station tests for five years. While comparing these and other varieties with those in the five year average the reader should bear in mind that the past year was exceedingly dry while the five year average includes two very dry seasons (1924 and 1925) one very wet season (1923) and two nearly normal seasons (1921 and 1922).

Doubtless, during the last two seasons many late varieties and mixtures have done extremely well. At the same time many very early varieties have not fulfilled expectations. While very late varieties are not dependable

under weevil conditions, it must be admitted that extreme earliness may be emphasized too strongly. Results indicate that in the hills of Mississippi and for average conditions one should choose a vigorous growing variety which at the same time has considerable earliness and prolificacy.

Table 5—Standard varieties—1925

Variety	Pounds per Acre		Lint Data			Total Dollars per Acre	Rank in Value	Bolls per lb.
	Seed Cotton	Lint	Per-centage	Length	Cents per lb.			
Price, Miss. Sta.	1450.6	461.3	31.8	1 1-16	20.83	115.88	21	90
Price, Burdette	1293.2	411.2	31.8	1 1-16	20.83	103.29	22	85
Cleveland, Wan.	1483.5	553.3	37.3	7-8	18.00	118.19	20	82
Cleveland, Pied.	1623.8	557.0	34.3	7-8	18.00	121.60	16	81
Cleveland, Coker	1494.5	557.4	37.3	7-8 f	18.33	120.91	17	77
Cleveland, 54	1738.5	615.4	35.4	15-16	18.53	136.49	7	80
Half & Half, Sum.	1383.5	629.5	45.5	3-4 f	16.80	120.84	18	76
Cook 1010	1514.0	613.2	40.5	13-16	17.10	122.88	14	85
Willis	1593.3	549.7	34.5	15-16 f	18.83	124.38	11	77
Miller	1716.5	597.3	34.8	1 1-16	20.83	146.80	4	62
Acala	1475.0	531.0	36.0	1 f	19.75	123.75	12	70
Mex. Big Boll	1520.1	532.0	35.0	1 1-16	20.83	130.58	8	68
D. & P. L. No. 4	1636.0	628.2	38.4	1 1-16 f	21.25	153.65	2	78
Lone Star 65	1416.4	492.9	34.8	1 1-16 f	21.25	123.21	13	68
Salsbury	1544.5	520.5	33.7	1 1-8	22.50	137.59	6	88
Webber, Deltatype	1365.2	401.4	29.4	1 5-16	32.00	147.73	3	79
Delfos 631	1406.7	455.8	32.4	1 3-16 f	26.42	139.44	5	76
Delfos 911	1407.9	456.2	32.4	1 1-8 f	23.67	127.01	10	89
Delfos 6102	1395.7	460.6	33.0	1 1-8	22.50	122.34	15	89
D. & P. L. No. 5	1464.0	491.9	33.6	1 1-4 f	29.67	165.39	1	78
Express, Light.	1289.5	399.7	31.0	1 3-16	25.33	119.04	19	87
Express, 432	1376.2	470.7	34.2	1 1-8 f	23.67	129.52	9	92

The value per acre of any given variety was based on \$40.00 a ton for seed and prices for lint based on an average of quotations as of November 2 middling grade obtained from Columbus, Memphis, and the State Farm Bureau at Jackson.

Variety tests reported here were planted between April 15 and April 20 but did not germinate until after the rains of May 9.

The last page of this publication gives the sources of the varieties used in these tests.

Table 5 reports the results from a test of twenty-two varieties, all of which are grown in commercial quantities. There were six replications of this test on soil shading from sandy loam to Houston clay. The fertilizer used was a light dressing of stable manure. The variations in stand were not considered sufficient to affect the accuracy of the results.

Table 6 reports results of twenty-three varieties some of which are standard commercial varieties while the others are comparatively recent introductions. There were six replications on Houston clay soil slightly mixed with sand. Drouth conditions were unusually severe on this test. Growth was terminated long before the fruiting season was over. The severity of the drouth is best indicated by the large number of bolls re-

quired to make a pound. The boll sizes in all tests were small but were worst in this and the wilt test.

Table 6—Standard and new varieties—1925

Variety	Pounds per Acre		Lint Data			Total Dollars per Acre	Rank in Value	Bolls per lb.
	Seed Cotton	Lint	Per-centage	Length	Cents per lb.			
Trice, Miss. Sta.	793.0	259.3	32.7	1 f	19.75	61.88	22	111
Half & Half, Mahon	744.2	325.2	43.7	3-4	16.50	62.04	21	94
Half & Half, Sum.	762.5	356.9	46.8	3-4 f	16.80	68.07	15	97
Half & Half, Clev.	822.3	372.5	45.3	3-4 f	16.80	71.58	13	90
Half & Half, Lee	763.7	357.4	46.8	3-4	16.50	67.10	17	94
Morrow's Best	832.0	292.9	35.2	7-8	18.00	63.50	20	99
Cook 1010, Maul.	679.5	288.1	42.4	13-16	17.10	57.10	23	108
Kelly Big Boll	1098.0	422.7	38.5	15-16 f	18.83	93.10	4	85
Sol. & Oates B. B.	1061.4	402.3	37.9	1	19.33	90.94	5	72
Clev. T. M. Wan.	845.5	328.1	38.8	13-16 f	17.33	67.21	16	91
Clev., Coker, Str. 4	869.9	325.3	37.4	7-8	18.00	69.44	14	95
Clev. 54	952.8	346.8	36.8	7-8 f	18.33	75.69	11	90
Clev. 9, Coker	908.9	322.7	35.5	1 1-16 f	21.25	80.29	8	85
Clev., Collins	838.1	298.4	35.6	7-8 f	18.33	65.49	19	109
Addison's Pro.	832.0	332.0	39.9	13-16	17.10	66.77	18	98
Sikes B. B.	969.9	367.6	37.9	7-8	18.00	78.22	10	92
Mex. B. B. Wake Co.	917.4	330.3	36.0	1	19.33	75.59	12	78
Delfos 6102	889.4	297.1	33.4	1 1-8	22.50	78.70	9	109
D. & P. L. No. 6	929.6	340.2	36.6	1 1-8	22.50	88.34	6	108
D. & P. L. No. 7	1096.8	411.3	37.5	1 1-16 f	21.25	101.11	1	90
D. & P. L. No. 8	1046.8	426.0	40.7	1	19.33	94.77	2	95
Webber 49-101-3-3	916.2	323.4	35.3	1 1-8	22.50	84.63	7	112
Deltatype, Str. 3	941.8	286.3	30.4	1 1-4	23.33	94.22	3	91

Table 7—Test for wilt resistance—1925

Variety	Pounds per Acre		Lint Data			Total Dollars per Acre	Rank in Value	Bolls per lb.
	Seed Cotton	Lint	Per-centage	Length	Cents per lb.			
Trice, Miss. Sta.	304	100.6	33.1	1 f	19.75	23.94	14	130
Half & Half, Sum.	324	140.9	43.5	3-4 f	16.80	27.33	10	93
Cook 1010	322	131.1	40.7	13-16 f	17.33	26.54	11	111
Cook 307-6	346	121.1	35.0	13-16 f	17.33	25.49	13	112
Cook, Rhyne	420	155.8	37.1	13-16 f	17.33	32.28	7	89
Sol. & Oates B. B.	486	173.5	35.7	1	19.33	39.79	3	83
Dixie Triumph	380	136.8	36.0	15-16	18.53	30.21	9	106
Kelly B. B.	498	181.3	36.4	7-8 f	18.33	39.56	4	93
Cleveland 54	416	143.9	34.6	7-8 f	18.33	31.82	8	92
Miller	690	229.1	33.2	1 f	19.75	54.47	1	68
Salsbury	422	135.5	32.1	1 1-16	20.83	33.95	6	102
Delfos 6102	410	127.5	31.1	1 1-8 f	23.67	35.83	5	119
Express 432	312	100.5	32.2	1 1-16 f	21.25	25.59	12	106
Watson	506	165.5	32.7	1 1-8	22.50	44.05	2	95

The test for wilt resistance is reported in table 7. The soil used was inoculated with the wilt fungus *Fusarium vasinfectum* a few days before planting. Aside from wilt injury to susceptible varieties, fruiting in the entire test was terminated before the rains the latter part of July and the plants never recovered sufficiently to set more fruit than could be taken care of by the few weevils which by that time had appeared.

The varieties ranking first, second, third, and fourth in money value have considerable wilt resistance and to this group should be added Rhyne's Cook, Cook 307-6, and Dixie Triumph. Cleveland 54 and Salsbury are somewhat resistant while Trice, Half & Half, Cook 1010 and Delfos are moderately to highly susceptible.

SEED SOURCES

- Acala—L. E. Gleeck, Box 334, Memphis, Tenn.
 Addison's Pro.—W. P. Addison, Blackwells, Ga.
 Cleveland, Coker—Pedigreed Seed Co., Hartsville, S. C.
 Cleveland, Coker, Str. 4—Pedigreed Seed Co., Hartsville, S. C.
 Cleveland 9, Coker—Pedigreed Seed Co., Hartsville, S. C.
 Cleveland, Collins—Rock Mountain Pedigreed Seed Farms, Rome, Ga.
 Cleveland, Pied.—Piedmont Pedigreed Seed Farms, Commerce Ga.
 Cleveland, T. M. Wan.—T. M. Wannamaker, St. Matthews, S. C.
 Cleveland, Wan.—Wannamaker-Cleveland Seed Farms, St. Matthews, S. C.
 Cleveland 54—Miss. Exp. Sta., A. & M. College, Miss.
 Cook, Rhyne—Rhyne Bros., Benton, Ala.
 Cook, 307-6—Alabama Experiment Station, Auburn, Ala.
 Cook 1010—D. N. Williamson Estate, Cedar Bluff, Ala.
 Cook, 1010, Maul.—C. M. Mauldin, Route 1, Vincent, Ala.
 D. & P. L. No. 4—Delta and Pine Land Co., Scott, Miss.
 D. & P. L. No. 5—Delta and Pine Land Co., Scott, Miss.
 D. & P. L. No. 6—Delta and Pine Land Co., Scott, Miss.
 D. & P. L. No. 7—Delta and Pine Land Co., Scott, Miss.
 D. & P. L. No. 8—Delta and Pine Land Co., Scott, Miss.
 Delfos 631—Delta Branch Experiment Station, Stoneville, Miss.
 Delfos 6102—Delta Branch Experiment Station, Stoneville, Miss.
 Delfos 911—Delta Branch Experiment Station, Stoneville, Miss.
 Dixie Triumph—L. O. Watson, Florence, S. C.
 Express, Lightning—Pedigreed Seed Co., Hartsville, S. C.
 Express 432—Stoneville Pedigreed Seed Co., Stoneville, Miss.
 Half & Half, Clev.—N. E. Cleveland, Stratton, Miss.
 Half & Half, Lee—M. B. Lee, Corinth, Miss.
 Half & Half, Mahon—H. K. Mahon, Holly Springs, Miss.
 Half & Half, Sum.—B. F. Summerour, Norcross, Ga.
 Kelly B. B.—S. O. Kelly, Headland, Ala.
 Lone Star 65—Miss. Exp. Sta., A. & M. College, Miss.
 Mex. Big Boll—Edgecombe Seed Breeders Assn., Tarboro, N. C.
 Mex. Big Boll, Wake Co.—Wake County Seed Co., Raleigh, N. C.
 Miller—Miss. Exp. Sta., A. & M. College, Miss.
 Morrow's Best—J. N. Morrow, Aliceville, Ala.
 Salsbury—Delta and Pine Land Co., Scott, Miss.
 Sikes Big Boll—Sikes Seed Co., Box 244, Atlanta, Ga.
 Sol. & Oates B. B.—Solomon and Oates, Headland, Ala.
 Trice, Burdette—Burdette Plantation, Burdette, Ark.
 Trice, Miss. Sta.—Miss. Experiment Station, A. & M. College, Miss.
 Watson—L. O. Watson, Florence, S. C.
 Webber, Deltatype—Pedigreed Seed Co., Hartsville, S. C.
 Webber, Deltatype, Str. 3—Pedigreed Seed Co., Hartsville, S. C.
 Webber 49-101-3-3—Pedigreed Seed Co., Hartsville, S. C.
 Willis—Mrs. Stark Willis, Graysport, Miss.