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Local Fertilizer Experiments With Cotton in North Alabama in 1911

BY

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LOCAL FERTILIZER EXPERIMENTS WITH COTTON IN NORTH ALABAMA IN 1911

By

By J. F. Duggar, J. T. Williamson, L. L. Glover, E. Hodson.

The chief object of these local fertilizer experiments or soil tests has been to ascertain the best fertilizer or combination of fertilizers for cotton, growing on each of the principal soils of the northern half of Alabama.

The results recorded in this bulletin were obtained in fertilizer experiments conducted with the funds provided by the Legislature of Alabama in February, 1911.

This bulletin deals only with fertilizer experiments carried to a conclusion in 1911 in the northern half of the State. For convenience the counties grouped together in this bulletin are those lying wholly north of the Central Prairie or Lime Region of Central Alabama.

The results of fertilizer experiments made in the counties lying wholly or partly south of the Central Prairie Region appeared in Bulletin No. 160, issued by this Station in December, 1911.

Local fertilizer tests constitute only one of many lines of experiments instituted in 1911 by the Alabama Experiment Station with the support of state funds, none of which were available for experimental work prior to the present year.

Local fertilizer experiments as now conducted are made on the farms of farmers especially recommended as being men likely to take the necessary pains to secure accurate results. These experiments, located all over the State, are visited and supervised by representatives of the Experiment Station, who are expected to select and measure the land, make periodic visits, and take notes on the progress and results of the experiment, and, so far as practicable, assist in harvesting the crop. However, the late date at which this work was begun in 1911, the fact that many farmers had already fertilized their most suitable land before being invited to make these experiments, and the necessary delay in securing the services of the men

who were to supervise these experiments, resulted in many cases in the selection of land and of locations which later proved not entirely satisfactory. It is expected that in future the percentage of conclusive and satisfactory experiments will be larger. However, no increase can be made in the total number of fertilizer experiments.

Small lots of carefully weighed and mixed fertilizers were supplied to each experimenter. Detailed instructions as to how to conduct the experiment and blank forms for reporting results were also furnished. Representatives of the Station inspected from one to three times all of the experiments here published except one.

The following list gives the name and address of each experimenter who has reported the results of fertilizer experiments made in 1911 in the part of the State indicated, together with the page of this bulletin where the results may be found.

COUNTY	POST OFFICE	NAME	Page
Bibb	Randolph	M. J. Payne	54, 56
Bibb	Centerville	J. H. Thompson	54, 55
Blount	Oneonto	W. F. Tidwell	42
Calhoun	Choccolocco	J. G. Borders	33
Calhoun	Jacksonville	T. S. Weaver	32
Cherokee	Centre	W. W. Ward	36
Chilton	Clanton	E. H. Parrish	54, 55
Chilton	Jemison	J. D. C. Scott	54, 55
Chilton	Maplesville	D. M. Foshee	14
Clay	Ashland	C. F. Striplin	54, 56
Clay	Ashland	J. R. Carpenter	54, 56
Clay	Lineville	A. Bell	
Cleburne	Heflin	J. W. Norton	54, 56
Colbert	Tuscumbia	G. H. Harris	50
Coosa	Nixburg	S. M. Day	9
Etowah	Attalla	W. A. Colvin	35
Franklin	Russellville	W. S. Douglas	
Jackson	Stevenson	J. C. Tally	54, 56
Jefferson	Quinton	W. L. Peterson	31
Jefferson	Birmingham, R. R. 8	G. C. Depoister	29
Lamar	Vernon	E. Ward	24
Lamar	Sulligent	Jack Woods	26
Lauderdale	Florence	W. R. Cox	47, 48
Lauderdale	Florence	J. F. Underwood	48
Limestone	Athens	Eighth Dist. Agr. School	44, 45

COUNTY	POST OFFICE	NAME	Page
Limestone	Athens	Fletcher Barksdale	39
Madison	Huntsville	W. W. Fox	51, 55
Madison	New Hope	C. T. Butler	51, 55
Marion	Glen Allen	W. P. Letson	51, 52
Marshall	Boaz	L. O. Cox	41, 42
Morgan	New Decatur	L. L. Pepper	55
Morgan	Hartselle	R. F. Orr	38
Pickens	Aliceville	G. C. Turnipseed	23
Pickens	Aliceville	J. D. Sanders	21
Randolph	Roanoke	J. T. Baird	15
Shelby	Columbiana	Henry Milner	16
Talladega	Talladega	J. C. Wallis	12
Talladega	Childersburg	W. Boaz	11
Tallapoosa	Dadeville	J. D. Williams	52, 53
Tallapoosa	East Tallassee	T. S. Ruffin	8
Tuscaloosa	Tuscaloosa	W. D. Lewis	18
Tuscaloosa	Tuscaloosa	R. M. Snow	20
Walker	Cordova	G. L. Alexander	28
Walker	Jasper	D. B. Lewis	27
Winston	Nauvoo	D. C. Wakefield	45

Plans were made and fertilizers were supplied for experiments in the following localities, where, however, the experiments were not carried out or, if carried out, no results were reported.

COUNTY	POST OFFICE	NAME
Fayette	Newtonville	J. H. Sullivan
Jackson	Paint Rock	W. E. Lester
Lawrence	Wheeler	Garth Gilchrist
Madison	Madison	J. B. Bronaugh
St. Clair	Steele	J. M. Shaw

The directions sent to each experimenter stated that the land employed for this test should be level and uniform, not manured in recent years, not in cowpeas the preceding year, and that it should be representative of large soil areas in its vicinity. The need of perfect uniformity and standard treatment for all plots (except as to kind of fertilizer used) was emphasized.

Fertilizers were applied in the usual manner—that is, drilled before planting, except nitrate of soda which was directed to be applied when the plants were 6 to 10 inches high.

The Fertilizers Used.

The following prices are used, as representing approximately the average cash price in local markets during the last few years:

	Per Ton.
Acid phosphate (14 per cent. available)	$14.00
Cotton seed meal	$30.00
Kainit	$14.00

Prices naturally vary in different localties. Any one can substitute the cost of fertilizers in his locality for the prices given above.

In each experiment three plots were left unfertilized, these being plots 3, 7, and 11. When these yields differed widely the experiment was classed as inconclusive The increase on plots 4 to 6 is calculated on the assumption that the gradation in fertility is uniform from plots 3 to 7; likewise the increase is calculated for Plots 8 to 10 inclusive.* The following table shows what kind and amounts of fertilizers were used on certain plots; the number of pounds of nitrogen, phosphoric acid, and potash supplied per acre by each fertilizer mixture; and the percentage composition and cost per ton of each mixture, the latter being given in order that these mixtures may be readily compared with various brands of prepared guanos.

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*In other words instead of calculating the increase merely by subtracting the yields of any plot from the average yield of the three unfertilized plots (which would be incorrect and misleading unless all three unfertilized plots afforded practically the same yield), the following method is used as a means of making allowance for variations in the natural fertility of the different plots:—

(1). The difference between the yields of unfertilized plots 3 and 7, or between unfertilized plots 7 and 11 is divided by 4, because this difference must be distributed over the four intervening plots.

(2). This quotient is then added to the yield of the poorest of this unfertilized pair, thus giving the corrected or calculated yield (if unfertilized), for the fertilized plot adjacent to the poorest unfertilized one. Similarly the yield of the poorest unfertilized plot is increased by twice and three times the above quotient as a means of calculating the corrected unfertilized yield on the plots occupying respectively second and third positions from the poorest unfertilized plot of the pair.

(3) Now these calculated yields (if the plots were unfertilized) are subtracted in regular order from the corresponding actual yield, thus giving the most accurate measure known for the increase due to the fertilizer.

Pounds per acre of fertilizers, nitrogen, phosphoric acid, and potash used and composition of each mixture.

Plot No.	FERTILIZERS: Amount per acre	FERTILIZERS: KIND	MIXTURE CONTAINS: Nitrogen	MIXTURE CONTAINS: †Available phosphoric acid	MIXTURE CONTAINS: Potash	COST OF FERTILIZERS: Per ton	COST OF FERTILIZERS: Per acre
	Lbs.		Lbs.	Lbs.	Lbs.		
1	200	Cotton seed meal	13.58	5.76	3 54	$30.00	$ 3.00
		*In 100 lbs. c. s. meal**	**6.79**	**2.88**	**1.77**		
2	240	Acid phosphate	------	36.12	-----	14.00	1.68
		In 100 lbs. acid phos.	------	**15.05**	-----		
4	200	Kainit	------	------	24.60	14.00	1.40
		In 100 lbs. kainit	------	------	**12.30**		
5	200	Cotton seed meal	13.58	41.88	3.54	21.27	4.68
	240	Acid phosphate					
		In 100 lbs. above mixt.	**3.09**	**9.52**	**.80**		
6	200	Cotton seed meal	13.58	5.76	28.14	22.00	4.40
	200	Kainit					
		In 100 lbs. above mixt.	**3.39**	**1.44**	**7.03**		
8	240	Acid phosphate	------	------	-----	13.99	3.08
	200	Kainit					
		In 100 lbs. above mixt.	------	**8.21**	5 **.59**		
9	200	Cotton seed meal	13.58	41.88	28.14	19.00	6.08
	240	Acid phosphate					
	200	Kainit					
		In 100 lbs. above mixt.	**2.12**	**6.54**	**4.39**		
10	200	Cotton seed meal	13.58	41.88	15.84	20.13	5.38
	240	Acid phosphate					
	100	Kainit					
		In 100 lbs. above mixt.	**2.59**	**7.75**	**2.93**		
12	240	Acid phosphate	14.00	15.05	12.30	22.17	4.88
	100	Kainit					
	100	Nitrate of soda					
		In 100 lbs. above mixt.	**3.18**	**8.20**	**2.80**		

*Average of many analysis.

†Counting all the phosphoric acid in cotton seed meal as available.

Those farmers who are more accustomed to the word ammonia than to the term nitrogen, can change the figures for nitrogen into their ammonia equivalents by multiplying by $1\frac{9}{14}$

Price Assumed for Seed Cotton.

The price assumed is $14.00 per ton for seed, and 10 cents per pound for lint. This is equal to 3.8 cents per pound of seed cotton turning out 33 1/3 per cent of lint. Deducting $\frac{6}{10}$ cents per pound as the average cost of picking and ginning, and we have left 3.2 cents as the net value per pound of the increase of seed cotton due to fertilizers. This latter is the figure used in all financial calculations.

TALLAPOOSA COUNTY, ¾ MILE WEST OF EAST TALLASSEE.

T. S. RUFFIN.

Gray sandy loam, red clay subsoil.

This is old land, and has been long in cultivation. There was no material damage from rust or insect injuries. The most profitable fertilizer was cotton seed meal applied alone, which afforded a profit of $10.57, or 302 per cent profit on the investment in fertilizers.

The average estimated increase of seed cottton per acre was 217 pounds for cotton seed meal. On the average there was a loss of 38 pounds for acid phosphate, and a gain of 92 pounds for kainit.

Nitrate of soda applied June 20, was more effective than was cotton seed meal.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	424 lbs.
To acid phosphate plot	156 lbs.
To kainit plot	196 lbs.
To acid phosphate and kainit plot	92 lbs.
Average increase with cotton seed meal	**217 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	8 lbs.
To cotton seed meal plot	—260 lbs.
To kainit plot	102 lbs.
To cotton seed meal and kainit plot	—2 lbs.
Average increase with acid phosphate	**—38 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	118 lbs.
To cotton seed meal plot	—110 lbs.
To acid phosphate plot	212 lbs.
To cotton seed meal and acid phosphate plot	148 lbs.
Average increase with kainit	**92 lbs.**

Increase from use of different quantities of kainit:

From use of 200 pounds kainit	148 lbs.
From use of 100 pounds kainit	72 lbs.
Increase from use of cotton seed meal	92 lbs.
Increase from use of nitrate of soda	216 lbs.
Nitrate better by	**124 lbs.**

Fertilizer experiments at Alexander City and East Tallassee

			Alexander City			East Tallassee		
Plot No.	Amount fertilizer per acre	KIND	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per cotton	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	672	128	$ 1.10	1112	424	$10.57
2	240	Acid phosphate	640	96	1.39	696	8	—1.42
3	000	No fertilizer	544	----	------	688	----	------
4	200	Kainit	576	80	1.16	808	118	2.38
5	200 240	Cotton seed meal Acid phosphate	904	456	9.91	856	164	0.57
6	200 200	Cotton seed meal Kainit	696	296	5.07	1008	314	5.65
7	000	No fertilizer	352	----	------	696	----	------
8	240 200	Acid phosphate Kainit	1064	690	19.00	912	220	3.96
9	200 240 200	Cotton seed meal Acid phosphate Kainit	1168	772	18.62	1000	312	3.90
10	200 240 100	Cotton seed meal Acid phosphate Kainit	1064	646	15.29	920	236	2.17
11	000	No fertilizer	440	----	------	680	----	------
12	240 100 100	Acid phosphate Kainit Nitrate of soda	928	488	10.74	1040	360	6.64

COOSA COUNTY, 13 MILES SOUTHWEST OF ALEXANDER CITY.

S. M. Day.

Gray and red loam, red clay subsoil.

This land has been cleared for about 75 years. The preceding crop was cotton. There was very little shedding and no damage from rust. Plots 1, 3, 7, and 11 had poor stands.

There was no damage done by the cotton caterpillars.

The complete fertilizers were all highly profitable, as was also a mixture of acid phosphate and kainit. The complete fertilizers with cotton seed meal gave larger profits than did the one with nitrate of soda. The average estimated increase of seed cotton per acre was 197 pounds for cotton seed meal; 378 pounds for acid phosphate; and 290 pounds for kainit.

Nitrate of soda applied June 16, was less effective than was cotton seed meal.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	128 lbs.
To acid phosphate plot	360 lbs.
To kainit plot	216 lbs.
To acid phosphate and kainit plot	82 lbs.
Average increase with cotton seed meal	**197 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	96 lbs.
To cotton seed meal plot	328 lbs.
To kainit plot	610 lbs.
To cotton seed meal and kainit plot	476 lbs.
Average increase with acid phosphate	**378 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	80 lbs.
To cotton seed meal plot	168 lbs.
To acid phosphate plot	594 lbs.
To cotton seed meal and acid phosphate plot	316 lbs.
Average increase with kainit	**290 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	316 lbs.
From use of 100 pounds kainit	190 lbs.

TALLADEGA COUNTY, 3 MILES EAST OF CHILDERSBURG.

W. BOAZ.

Gray loam with clay subsoil.

This land has been cleared for 25 years. The preceding crops were cotton. There was no damage from rust or shedding, but about 10 cent damage from the cotton caterpillar. All the fertlizers were profitable except those on plot 12. The complete fertilizer on plot 10 afforded the largest profit, $7.48 per acre, or 139 per cent profit on the cost of fertilizers.

The average estimated increase of seed cotton per acre was 110 pounds for cotton seed meal; 186 pounds for acid phosphate and 40 pounds for kainit.

Nitrate of soda applied June 20, was less effective than was cotton seed meal. Kainit at the rate of 100 pounds per acre was more effective than where it was applied at double this rate.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	128 lbs.
To acid phosphate plot	164 lbs.
To kainit plot	108 lbs.
To acid phosphate and kainit plot	38 lbs.
Average increase with cotton seed meal	**110 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	168 lbs.
To cotton seed meal plot	204 lbs.
To kainit plot	220 lbs.
To cotton seed meal and kainit plot	150 lbs.
Average increase with acid phosphate	**186 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	50 lbs.
To cotton seed meal plot	30 lbs.
To acid phosphate plot	102 lbs.
To cotton seed meal and acid phosphate plot	—24 lbs.
Average increase with kainit	**40 lbs.**

Increase from use of different quantities of kainit:

From use of 200 pounds kainit ..... —24 lbs.
From use of 100 pounds kainit ..... 70 lbs.

Experiments in Talladega County

Plot No.	Amount fertilizer per acre	KIND	Childersburg: Yield seed cotton per acre	Childersburg: Increase over unfertilized plot	Childersburg: Profit from fertilizer	Talladega: Yield seed cotton per acre	Talladega: Increase over unfertilized plot	Talladega: Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	568	128	$ 1.10	1240	200	$ 3.40
2	240	Acid phosphate	608	168	3.69	1240	200	4.72
3	000	No fertilizer	440	----	------	1040	----	----
4	200	Kainit	480	50	0.20	1048	000	—1.40
5	200 240	Cotton seed meal Acid phosphate	752	332	5.94	1296	240	3.00
6	200 200	Cotton seed meal Kainit	568	158	1.65	1144	80	—1.84
7	000	No fertilizer	400	----	------	1072	----	----
8	240 200	Acid phosphate Kainit	648	270	5.56	1240	256	5.11
9	200 240 200	Cotton seed meal Acid phosphate Kainit	664	308	3.78	1320	424	7.48
10	200 240 100	Cotton seed meal Acid phosphate Kainit	736	402	7.48	1548	740	18.30
11	000	No fertilizer	312	----	------	720	----	----
12	240 100 100	Acid phosphate Kainit Nitrate of soda	464	152	0.02	1032	312	5.10

TALLADEGA COUNTY, 7 MILES NORTH OF TALLADEGA.

J. C. Wallis.

Dark loam, clay subsoil.

This land has been in cultivation for nine years. The preceding crop was corn. Shedding was uniform. There was no damage from rust and the cotton caterpillar attacked the cotton too late to do any material damage. The stand was good. All of the fertilizers were profitable except those on plots 5 and 6. The most profitable fertilizer was the complete

fertlizer on plot 10, which afforded a profit of $18.30 per acre, or 341 per cent on the cost of fertilizers.

The average estimated increase of seed cotton per acre where cotton seed meal was applied was 122 pounds; 210 pounds for acid phosphate, and 30 pounds for kainit. Nitrate of soda applied July 3 was less effective than was cotton seed meal. One hundred pounds of kainit was better than a larger amount.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	200 lbs.
To acid phosphate plot	40 lbs.
To kainit plot	80 lbs.
To acid phosphate and kainit plot	168 lbs.
Average increase with cotton seed meal	**122 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	200 lbs.
To cotton seed meal plot	40 lbs.
To kainit plot	256 lbs.
To cotton seed meal and kainit plot	344 lbs.
Average increase with acid phosphate	**210 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	000 lbs.
To cotton seed meal plot	—120 lbs.
To acid phosphate plot	56 lbs.
To cotton seed meal and acid phosphate plot	184 lbs.
Average increase with kainit	**30 lbs.**
Increase from use of different quantities of kainit:	
To use of 200 pounds kainit	184 lbs.
To use of 100 pounds kainit	500 lbs.

CHILTON COUNTY, HALF-MILE SOUTH OF MAPLESVILLE.

D. M. FOSHEE.

Sandy loam.

The preceding crop on this land was corn. No report was made on insect injuries or stand. All of the fertilizers were profitable. The greatest profits were from mixtures of cotton seed meal mixed with either kainit or acid phosphate. The average increase of seed cotton per acre was 272 pounds for cotton seed meal; 33 pounds for acid phosphate; and 19 pounds for kainit.

Nitrate of soda, applied June 5th, was more effective than was cotton seed meal in a complete fertilizer. The smaller amount of kainit was preferable to the larger amount.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	424 lbs.
To acid phosphate plot	276 lbs.
To kainit plot	292 lbs.
To acid phosphate and kainit plot	96 lbs.
Average increase with cotton seed meal	**272 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	224 lbs.
To cotton seed meal plot	76 lbs.
To kainit plot	14 lbs.
To cotton seed meal and kainit plot	—182 lbs.
Average increase with acid phosphate	**33 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	202 lbs.
To cotton seed meal plot	70 lbs.
To acid phosphate plot	—8 lbs.
To cotton seed meal and acid phosphate plot	—188 lbs.
Average increase with kainit	**19 lbs.**
Increase from use of cotton seed meal	96 lbs.
Increase from use of nitrate of soda	248 lbs.
Nitrate better by	**152 lbs.**

Fertilizer experiments in Chilton and Randolph Counties

Plot No.	Amount fertilizer per acre	KIND	Maplesville: Yield seed cotton per acre	Maplesville: Increase over unfertilized plot	Maplesville: Profit from fertilizer	Roanoke: Yield seed cotton per acre	Roanoke: Increase over unfertilized plot	Roanoke: Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	792	424	$10.57	816	16	$ 2.49
2	240	Acid phosphate	592	224	5.49	840	40	—0.40
3	000	No fertilizer	368	----	------	800	----	------
4	200	Kainit	584	202	5.06	840	136	2.95
5	200 240	Cotton seed meal Acid phosphate	896	500	11.32	1136	528	12.22
6	200 200	Cotton seed meal Kainit	904	494	11.41	648	136	—0.05
7	000	No fertilizer	424	----	------	416	----	------
8	240 200	Acid phosphate Kainit	664	216	3.83	808	384	9.21
9	200 240 200	Cotton seed meal Acid phosphate Kainit	784	312	3.90	936	504	10.05
10	200 240 100	Cotton seed meal Acid phosphate Kainit	784	288	3.84	944	504	10.75
11	000	No fertilizer	520	----	------	448	----	------
12	240 100 100	Acid phosphate Kainit Nitrate of soda	960	440	9.20	800	352	6.38

RANDOLPH COUNTY, 2 MILES WEST OF ROANOKE.

J. T. Baird.

Red clay loam, with red clay subsoil.

This land has been cleared for 75 years. Corn was the preceding crop. There was no damage reported from rust or insect attacks. The stand was good, 820 plants per plot. The average estimated increase of seed cotton was 156 pounds per acre for cotton seed meal; 292 pounds for acid phoshate; and 144 pounds for kainit.

The complete fertilizers were very profitable. The highest profit per acre was $12.22, or 261 per cent on the investment in fertilizers.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	16 lbs.
To acid phosphate plot	488 lbs.
To kainit plot	000 lbs.
To acid phosphate and kainit plot	120 lbs.
Average increase with cotton seed meal	**156 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	40 lbs.
To cotton seed meal plot	512 lbs.
To kainit plot	248 lbs.
To cotton seed meal and kainit plot	368 lbs.
Average increase with acid phosphate	**292 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	136 lbs.
To cotton seed meal plot	120 lbs.
To acid phosphate plot	344 lbs.
To cotton seed meal and acid phosphate plot	—24 lbs.
Average increase with kainit	**144 lbs.**
Increase from use of cotton seed meal	156 lbs.
Increase from use of nitrate of soda	4 lbs.
Cotton seed meal better by	**152 lbs.**

SHELBY COUNTY, ¼-MILE EAST OF COLUMBIANA.

HENRY MILNER.

Gray gravely loam, with light yellow subsoil.

This land has been cleared for fifteen years. The preceding crop was cotton. Rust did most damage on the unfertilized plots, and least damage on plots 9, 10, and 12, or the ones most highly fertlized. The stand was uniform. All of the fertilizers were highly profitable.

Kainit where applied alone or in combination proved to be the most profitable of any one of the fertilizers. Where applied alone it afforded a profit of $8.63 or 616 per cent on the investment in fertilizers, against a profit of $2.93 for acid phosphate, and $4.11 for cotton seed meal. The most profitable

complete fertilizers were those applied to plots 9 and 10 which afforded a profit of $12.73 and $12.99, respectively, as compared with a profit of $8.94 for the complete fertilizer containing nitrate of soda.

The average estimated increase of seed cotton per acre attributable to cotton seed meal was 185 pounds; to acid phosphate 147 pounds; and to kainit 273 pounds.

Fertilizer experiment at Columbiana

Plot No.	Amount fertilizer per acre	KIND	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	568	224	$ 4.17
2	240	Acid phosphate	488	144	2.93
3	000	No fertilizer	344	----	------
4	200	Kainit	680	322	8.63
5	200 240	Cotton seed meal Acid phosphate	768	396	7.99
6	200 200	Cotton seed meal Kainit	856	470	10.64
7	000	No fertilizer	400	----	------
8	240 200	Acid phosphate Kainit	880	474	12.08
9	200 240 200	Cotton seed meal Acid phosphate Kainit	1000	588	12.73
10	200 240 100	Cotton seed meal Acid phosphate Kainit	992	574	12.99
11	000	No fertilizer	424	----	------
12	240 100 100	Acid phosphate Kainit Nitrate of soda	856	432	8.94

Increase of seed cotton per acre when cotton seed meal was added:

To fertilized plot	224 lbs.
To acid phosphate plot	252 lbs.
To kainit plot	148 lbs.
To acid phosphate and kainit plot	114 lbs.
Average increase with cotton seed meal	**185 lbs.**

Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	144 lbs.
To cotton seed meal plot	172 lbs.
To kainit plot	152 lbs
To cotton seed meal and kainit plot	118 lbs.
Average increase with acid phosphate	**147 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	322 lbs.
To cotton seed meal plot	246 lbs.
To acid phosphate plot	330 lbs.
To cotton seed meal and acid phosphate plot	192 lbs
Average increase with kainit	**273 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	192 lbs.
From use of 100 pounds kainit	178 lbs.
Increase from use of cotton seed meal	114 lbs.
Increase from use of nitrate of soda	—28 lbs.
Cotton seed meal better by	**142 lbs.**

TUSCALOOSA COUNTY, 3¼ MILES EAST OF TUSCALOOSA.

W. D. LEWIS.

Red clay loam.

The preceding crop was corn. There was a good stand. This cotton was injured to some extent by drought in June and July.

Cotton seed meal and acid phosphate were profitable when used alone and when combined, except when in combination with kainit.

The average increase of seed cotton per acre was 114 pounds for cotton seed meal, against 58 pounds for acid phosphate, and 152 pounds for kainit.

Cotton seed meal gave a profit of $4.04 per acre or 135 per cent; acid phosphate gave a profit of $4.46 per acre or 242 per cent; a mixture of cotton seed meal and acid phosphate gave a profit of $7.35 per acre or 163 per cent.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	220 lbs.
To acid phosphate plot	184 lbs.
To kainit plot	—12 lbs.
To acid phosphate and kainit plot	64 lbs.
Average increase with cotton seed meal	**114 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	192 lbs.
To cotton seed meal plot	156 lbs.
To kainit plot	—96 lbs.
To cotton seed meal and kainit plot	—20 lbs.
Average increase with acid phosphate	**58 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	80 lbs.
To cotton seed meal plot	—152 lbs.
To acid phosphate plot	—208 lbs.
To cotton seed meal and acid phosphate plot	—328 lbs.
Average increase with kainit	**—152 lbs.**
Increase from use of cotton seed meal	64 lbs.
Increase from use of nitrate of soda	96 lbs.
Nitrate better by	**32 lbs.**

Experiments in Tuscaloosa County

Plot No.	Amount fertilizer per acre	KIND	3¼ Miles East of Tuscaloosa			2 Miles West of Tuscaloosa		
			Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	860	220	$ 4.04	424	—32	—4 02
2	240	Acid phosphate	832	192	4 46	728	272	7.02
3	000	No fertilizer	640			456		
4	200	Kainit	720	80	1.16	832	376	10.63
5	200	Cotton seed meal	1016	376	7.35	808	352	6.58
	240	Acid phosphate						
6	200	Cotton seed meal	708	68	—2.22	944	488	11.22
	200	Kainit						
7	000	No fertilizer						
8	240	Acid phosphate	624	—16	—3.59	1080	624	16.89
	200	Kainit						
9	200	Cotton seed meal	688	48	—4 52	1120	664	15.17
	240	Acid phosphate						
	200	Kainit						
10	200	Cotton seed meal	792	152	—0.52	976	520	11.26
	240	Acid phosphate						
	100	Kainit						
11	000	No fertilizer						
12	240	Acid phosphate	824	184	1.01	856	400	7.92
	100	Kainit						
	100	Nitrate of soda						

TUSCALOOSA COUNTY, 2 MILES WEST OF TUSCALOOSA.

RICHARD M. SNOW.

Red clay loam.

Old land pastured for the two preceding years. Japanese clover grew in the pasture. No rust or insect damages were reported. There was a poor stand on account of thinning too early. The highest yields were produced by complete fertilizers, but the greatest profit was from kainit and acid phosphate.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	32 lbs.
To acid phosphate plot	80 lbs
To kainit plot	112 lbs.
To acid phosphate and kainit plot	40 lbs
Average increase with cotton seed meal	**50 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	272 lbs.
To cotton seed meal plot	384 lbs.
To kainit plot	248 lbs.
To cotton seed meal and kainit plot	176 lbs.
Average increase with acid phosphate	**270 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	376 lbs.
To cotton seed meal plot	520 lbs.
To acid phosphate plot	352 lbs.
To cotton seed meal and acid phosphate plot	312 lbs.
Average increase with kainit	**390 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	312 lbs.
From use of 100 pounds kainit	163 lbs.
Increase from use of cotton seed meal	40 lbs.
Increase from use of nitrate of soda	—80 lbs.
Cotton seed meal better by	**120 lbs.**

PICKENS COUNTY, ¼-MILE FROM ALICEVILLE.

J. D. SANDERS.

Sandy loam with yellow clay subsoil.

This land has been in cultivation for a considerable length of time. There was no damage reported from rust or insect attacks. The stand was poor, but each plot had an average number of plants. The most profitable complete fertilizer was that applied to Plot 9, affording a profit of $4.16 per acre or 68 per cent on the investment in fertilizers. The most profitable single fertilizer was acid phosphate, which gave a profit of $2.72, or 172 per cent on the investment in fertilizer. The average estimated increase of seed cotton attributable to cotton seed meal was 34 pounds; to acid phosphate 142 pounds, and to kainit 46 pounds.

Cotton seed meal was better than nitrate of soda, and 100 pounds of kainit was practically as effective as 200 pounds.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	88 lbs.
To acid phosphate plot	176 lbs.
To kainit plot	96 lbs.
To acid phosphate and kainit plot	175 lbs.
Average increase with cotton seed meal	**134 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	128 lbs.
To cotton seed meal plot	216 lbs.
To kainit plot	73 lbs.
To cotton seed meal and kainit plot	152 lbs.
Average increase with acid phosphate	**142 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	72 lbs.
To cotton seed meal plot	80 lbs.
To acid phosphate plot	17 lbs.
To cotton seed meal and acid phosphate plot	16 lbs.
Average increase with kainit	**46 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	16 lbs.
From use of 100 pounds kainit	—16 lbs.
Increase from use of cotton seed meal	175 lbs.
Increase from use of nitrate of soda	71 lbs
Cotton seed meal better by	**104 lbs.**

Fertilizer experiments in Pickens County

Plot No.	Amount fertilizer per acre	KIND	¼ Mile From Aliceville			5 Miles West of Aliceville		
			Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	424	88	—0.18	904	248	$ 4.94
2	240	Acid phosphate	464	128	2.72	824	168	3.70
3	000	No fertilizer	336	----	----	656	----	----
4	200	Kainit	408	72	0.90	680	—12	—1.78
5	200 240	Cotton seed meal Acid phosphate	640	304	5.05	896	168	0.70
6	200 200	Cotton seed meal Kainit	504	168	0.98	856	92	—1.46
7	000	No fertilizer	----	----	----	800	----	----
8	240 200	Acid phosphate Kainit	481	145	1.56	840	68	—0.90
9	200 240 200	Cotton seed meal Acid phosphate Kainit	656	320	4.16	864	120	—2.24
10	200 240 100	Cotton seed meal Acid phosphate Kainit	624	288	3 84	680	—36	—6.53
11	000	No fertilizer	----	----	----	688	----	----
12	240 100 100	Acid phosphate Kainit Nitrate of soda	520	184	1.01	864	176	0.75

PICKENS COUNTY, 5 MILES WEST OF ALICEVILLE.

G. C. Turnipseed.

Red clay loam with red clay subsoil.

This land has been in cultivation for about 75 years. The preceding crop was corn. There was no damage done from rust or worms. The cotton suffered from drought. The most profitable fertilizer was cotton seed meal which gave a profit of $4.94 per acre, or 165 per cent on the investment in fertilizers. The average estimated increase of seed cotton per acre was 101 pounds for cotton seed meal; 49 pounds for acid phosphate; and a loss of 79 pounds for kainit.

Nitrate of soda was more effective than was cotton seed meal.

Increase of seed cotton per acre when cotton seed meal was added:

To unfertilized plot	248 lbs.
To acid phosphate plot	000 lbs.
To kainit plot	104 lbs.
To acid phosphate and kainit plot	52 lbs.
Average increase with cotton seed meal	101 lbs.

Increase of seed cotton per acre when acid phosphate was added:

To unfertilized plot	168 lbs.
To cotton seed meal plot	—80 lbs.
To kainit plot	80 lbs.
To cotton seed meal and kainit plot	28 lbs.
Average increase with acid phosphate	49 lbs.

Increase of seed cotton per acre when kainit was added:

To unfertilized plot	—12 lbs.
To cotton seed meal plot	—156 lbs.
To acid phosphate plot	—100 lbs.
To cotton seed meal and acid phosphate plot	—48 lbs.
Average increase with kainit	—79 lbs.

Increase from use of cotton seed meal	52 lbs.
Increase from use of nitrate of soda	264 lbs.
Nitrate better by	212 lbs.

LAMAR COUNTY, 12 MILES SOUTH OF SULLIGENT.

E. WARD.

Light sandy loam, clay subsoil.

This land has been cultivated for 40 years. The preceding crop was cotton. There was no damage from rust or from the cotton caterpllar. The stand was good.

This soil was chiefly in need of nitrogen. A mixture of cotton seed meal and acid phosphate gave the largest profit, $12.09 per acre, or a profit of 258 per cent on the investment in fertilizers.

The average increase in seed cotton per acre was, with cotton seed meal, 223 pounds, and with acid phosphate 137 pounds. Kainit resulted on an average in the loss of 53 pounds of seed cotton per acre.

Cotton seed meal was slightly more effective than an application of nitrate of soda made in July.

Increase of seed cotton per acre when cotton seed meal was added:

To unfertilized plot	384 lbs.
To acid phosphate plot	204 lbs.
To kainit plot	156 lbs.
To acid phosphate and kainit plot	196 lbs.
Average increase with cotton seed meal	223 lbs.

Increase of seed cotton per acre when acid phosphate was added:

To unfertilized plot	320 lbs.
To cotton seed meal plot	144 lbs.
To kainit plot	22 lbs.
To cotton seed meal and kainit	62 lbs.
Average increase with acid phosphate	**137 lbs.**

Increase of seed cotton per acre when kainit was added:

To unfertilized plot	150 lbs.
To cotton seed meal plot	—78 lbs.
To acid phosphate plot	—148 lbs.
To cotton seed meal and acid phosphate plot	—156 lbs.
Average increase with kainit	**—53 lbs.**

Increase from use of cotton seed meal	196 lbs.
Increase from use of nitrate of soda	176 lbs.
Cotton seed meal better by	**20 lbs.**

Fertilizer experiments with cotton near Sulligent

			12 Miles South			6 Miles South		
Plot No.	Amount fertilizer per acre	KIND	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	672	384	$ 9.29	552	144	$ 1.61
2	240	Acid phosphate	608	320	8.56	488	80	0.88
3	00	No fertilizer	288	----	------	408	----	------
4	200	Kainit	448	150	3.40	432	16	—0.89
5	200	Cotton seed meal	832	524	12.09	624	200	1.72
	240	Acid phosphate						
6	200	Cotton seed meal	624	306	5.39	560	128	—0.30
	200	Kainit						
7	000	No fertilizer	328	----	------	440	----	------
8	240	Acid phosphate	496	172	2.42	592	142	1.46
	200	Kainit						
9	200	Cotton seed meal	688	368	5.70	552	92	—3.14
	240	Acid phosphate						
	200	Kainit						
10	200	Cotton seed meal	680	364	6.27	632	162	—0.20
	240	Acid phosphate						
	100	Kainit						
11	000	No fertilizer	312	----	------	480	----	------
12	240	Acid phosphate	656	344	6.13	824	344	6.13
	100	Kainit						
	100	Nitrate of soda						

LAMAR COUNTY, 6 MILES SOUTH OF SULLIGENT.

JACK WOODS.

Gray clay loam with red subsoil.

This land has been in cultivation 40 years. The preceding crop was cotton. No damage was reported from rust. Slight damage was done by cotton caterpillars. The stand was uniform. The only fertilizer showing any considerable profit was a complete fertilizer consisting of acid phosphate, kainit and nitrate of soda (Plot 12), which afforded a profit of $6.13 per acre, or 126 per cent on the investment in fertilizers. The average estimated increase of seed cotton per acre was 82 pounds for cotton seed meal; and 57 pounds for acid phosphate; while with kainit there was, on the average, no increase in the crop.

Nitrate of soda applied June 19, was more effective than was an earlier and larger application of cotton seed meal.

Increase of seed cotton per acre when cotton seed meal was added:

To unfertilized plot	144 lbs.
To acid phosphate plot	120 lbs.
To kainit plot	112 lbs.
To acid phosphate and kainit plot	—50 lbs.
Average increase with cotton seed meal	**82 lbs.**

Increase of seed cotton per acre when acid phosphate was added:

To unfertilized plot	80 lbs.
To cotton seed meal plot	56 lbs.
To kainit plot	126 lbs.
To cotton seed meal and kainit plot	—36 lbs.
Average increase with acid phosphate	**57 lbs.**

Increase of seed cotton per acre when kainit was added:

To unfertilized plot	16 lbs.
To cotton seed meal plot	—16 lbs.
To acid phosphate plot	62 lbs.
To cotton seed meal and acid phosphate plot	—108 lbs.
Average increase with kainit	**—12 lbs.**

Increase from use of cotton seed meal	—50 lbs.
Increase from use of nitrate of soda	132 lbs.
Nitrate better by	**182 lbs.**

WALKER COUNTY, 6 MILES EAST OF JASPER.

D. B. LEWIS.

Light gray loam, yellow clay subsoil.

This land has been in cultivation for 48 years. The preceding crop was rye. There was no damage reported from rust or insect injuries. The stand was uniform for each plot. The average estimated increase of seed cotton per acre was 288 pounds for cotton seed meal; for acid phosphate 409 pounds; and 50 pounds for kainit.

The greatest profit was afforded by a mixture of cotton seed meal and acid phosphate on Plot 5, namely, $19.13 per acre. This is a profit of 409 per cent on the investment in fertilizers.

All of the complete fertilizers were highly profitable. Of the single applications acid phosphate was the most profitable. The complete fertilizers with cotton seed meal gave higher profits than when nitrate of soda was used.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	180 lbs.
To acid phosphate plot	396 lbs.
To kainit plot	294 lbs.
To acid phosphate and kainit plot	278 lbs.
Average increase with cotton seed meal	**288 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	348 lbs.
To cotton seed meal plot	564 lbs.
To kainit plot	370 lbs.
To cotton seed meal and kainit plot	354 lbs.
Average increase with acid phosphate	**409 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	40 lbs.
To cotton seed meal plot	154 lbs.
To acid phosphate plot	62 lbs.
To cotton seed meal and acid phosphate plot	—56 lbs.
Average increase with kainit	**50 lbs.**
Increase from use of cotton seed meal	278 lbs.
Increase from use of nitrate of soda	168 lbs.
Cotton seed meal better by	**110 lbs.**

Fertilizer experiments in Walker County

Plot No.	Amount fertilizer per acre	KIND	Jasper			Cordova		
			Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	456	180	$ 3.76	768	168	$ 2.38
2	240	Acid phosphate	624	348	9.46	824	224	5.49
3	000	No fertilizer	276	----	------	600	----	------
4	200	Kainit	302	40	—0.12	712	136	2.95
5	200	Cotton seed meal	992	744	19.13	952	400	8.12
	240	Acid phosphate						
6	200	Cotton seed meal	568	334	6.29	808	280	4.56
	200	Kainit						
7	000	No fertilizer	220	----	------	504	----	------
8	240	Acid phosphate	640	410	10.04	712	192	3.06
	200	Kainit						
9	200	Cotton seed meal	928	688	15.94	768	232	1.34
	240	Acid phosphate						
	200	Kainit						
10	200	Cotton seed meal	884	634	14.91	856	304	4.35
	240	Acid phosphate						
	100	Kainit						
11	000	No fertilizer	260	----	----	568	----	------
12	240	Acid phosphate	784	524	11.89	904	336	5.87
	100	Kainit						
	100	Nitrate of soda						

WALKER COUNTY, 3 MILES SOUTH OF CORDOVA.

G. L. ALEXANDER.

Gray loam, red clay subsoil.

This land has been in cultivation for 26 years. There was no damage from rust. The preceding crop was oats. The stand was very good, though not perfect.

The most profitable fertilizer was cotton seed meal and acid phosphate, affording a profit of $8.12 per acre, or 173 per cent on the investment in fertlizer. The average estimated increase of seed cotton per acre was 132 pounds for cotton seed meal; 116 pounds for acid phosphate; and 12 pounds for kainit.

The complete fertilizer with nitrate of soda gave a higher profit than did the complete fertlizer with cotton seed meal. Of

the single applications, acid phosphate was the most profitable. Kainit was not needed.

Increase of seed cotton per acre when cotton seed meal was added:

To unfertilized plot	168 lbs.
To acid phosphate plot	176 lbs.
To kainit plot	144 lbs.
To acid phosphate and kainit plot	40 lbs.
Average increase with cotton seed meal	**132 lbs.**

Increase of seed cotton per acre when acid phosphate was added:

To unfertilized plot	224 lbs.
To cotton seed meal plot	232 lbs.
To kainit plot	56 lbs.
To cotton seed meal and kainit plot	—48 lbs.
Average increase with acid phosphate	**116 lbs.**

Increase of seed cotton per acre when kainit was added:

To unfertilized plot	136 lbs.
To cotton seed meal plot	112 lbs.
To acid phosphate plot	—32 lbs.
To cotton seed meal and acid phosphate plot	—168 lbs.
Average increase with kainit	**12 lbs.**
Increase from use of cotton seed meal	40 lbs.
Increase from use of nitrate of soda	72 lbs.
Nitrate better by	**32 lbs.**

JEFFERSON COUNTY, 10 MILES NORTHEAST OF BIRMINGHAM.

G. C. Depoister.

Gray gravely loam with red clay subsoil.

This land has been cleared only five years. Corn was the preceding crop. There was no damage done from rust or insect attacks. There was a good stand.

The most profitable fertilizer was acid phosphate and kainit, $8.74 per acre, or 284 per cent profit on the investment. The most profitable single fertilizer was acid phosphate, $3.18, or 189 per cent profit on the investment. The average estimated increase in seed cotton per acre was 97 pounds from cotton seed meal, 186 pounds from acid phosphate, and 77 pounds from kainit.

Increase of seed cotton per acre when cotton seed meal was added:

To unfertilized plot	104 lbs.
To acid phosphate plot	168 lbs.
To kainit plot	160 lbs.
To acid phosphate and kainit plot	—46 lbs.
Average increase with cotton seed meal	**97 lbs.**

Increase of seed cotton per acre when acid phosphate was added:

To unfertilized plot	152 lbs.
To cotton seed meal plot	216 lbs.
To kainit plot	290 lbs.
To cotton seed meal and kainit plot	84 lbs.
Average increase with acid phosphate	**186 lbs.**

Increase of seed cotton per acre when kainit was added:

To unfertilized plot	48 lbs.
To cotton seed meal plot	104 lbs.
To acid phosphate plot	186 lbs.
To cotton seed meal and acid phosphate plot	—28 lbs.
Average increase with kainit	**77 lbs.**

Fertilizer experiments in Jefferson County

			10 Miles North of Birmingham			Quinton		
Plot No.	Amount fertilizer per acre	KIND	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	1144	80	$ 1.86	1064	104	$ 0.33
2	240	Acid phosphate	992	—72	—3.98	1112	152	3.18
3	000	No fertilizer	1064	----	------	960	----	------
4	200	Kainit	968	—52	—3.06	1008	48	0.14
5	200 240	Cotton seed meal Acid phosphate	1120	144	—0.07	1280	320	5.56
6	200 200	Cotton seed meal Kainit	1040	108	—0.94	1168	208	2.26
7	00	No fertilizer	888	----	------	960	----	------
8	240 200	Acid phosphate Kainit	952	82	—0.46	1312	338	8.74
9	200 240 200	Cotton seed meal Acid phosphate Kainit	1144	292	3.26	1280	292	3.26
10	200 240 100	Cotton seed meal Acid phosphate Kainit	1224	390	7.10	1280	278	3.52
11	000	No fertilizer	816	----	------	1016	----	------
12	240 100 100	Acid phosphate Kainit Nitrate of soda	944	128	—0.78	856	—160	—10.00

JEFFERSON COUNTY, 1¼ MILES EAST OF QUINTON.

W. L. PETERSON.

Light gray loam, red clay subsoil.

This land has been cultivated for 18 years. The preceding crop was wheat. Some damage was done by the cotton caterpillar. There was a good stand.

Complete fertilizers were the most profitable. The complete fertilizer on Plot 10 affording a profit of $7.10 per acre, or 132 per cent on the investment. The average estimated increase of seed cotton per acre was 167 pounds from cotton seed meal; 53 pounds from acid phosphate; and 45 pounds from kainit.

Cotton seed meal was more effective than nitrate of soda, and 100 pounds of kainit afforded a larger yield than did 200 pounds.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	80 lbs.
To acid phosphate plot	216 lbs.
To kainit plot	160 lbs.
To acid phosphate and kainit plot	210 lbs.
Average increase with cotton seed meal	**167 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	—72 lbs.
To cotton seed meal plot	64 lbs.
To kainit plot	134 lbs.
To cotton seed meal and kainit plot	184 lbs.
Average increase with acid phosphate	**53 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	—52 lbs.
To cotton seed meal plot	28 lbs.
To acid phosphate plot	154 lbs.
To cotton seed meal and acid phosphate plot	148 lbs.
Average increase with kainit	**45 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	148 lbs.
From use of 100 pounds kainit	246 lbs.
Increase from use of cotton seed meal	210 lbs.
Increase from use of nitrate of soda	—52 lbs.
Cotton seed meal better by	**262 lbs.**

CALHOUN COUNTY, 2½ MILES SOUTH OF JACKSONVILLE.

T. S. WEAVER.

Sandy land with clay subsoil.

This land has been cleared 30 years or more. The preceding crop was cotton. There was no damage from rust. There was a good stand. The most profitable application of fertilizer proved to be the complete fertilizer, on plot 12, which contained nitrate of soda; this mixture afforded a profit of $9.97 per acre, or 204 per cent on the investment in fertilizers. The application of fertilizers singly was not profitable. The average increase of seed cotton per acre was 150 pounds from cotton seed meal; 70 pounds from acid phosphate; and 36 pounds from kainit.

Nitrate of soda was more effective than cotton seed meal, and 100 pounds of kainit was better than 200 pounds.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	64 lbs.
To acid phosphate plot	188 lbs.
To kainit plot	68 lbs.
To acid phosphate and kainit plot	278 lbs.
Average increase with cotton seed meal	**150 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	8 lbs.
To cotton seed meal plot	132 lbs.
To kainit plot	—36 lbs.
To cotton seed meal and kainit plot	174 lbs.
Average increase with acid phosphate	**70 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilzed plot	34 lbs.
To cotton seed meal plot	38 lbs.
To acid phosphate plot	—10 lbs.
To cotton seed meal and acid phosphate plot	80 lbs.
Average increase with kainit	**36 lbs.**
Increase from use of 200 pounds kainit	80 lbs.
Increase from use of 100 pounds kainit	118 lbs.
Increase from use of cotton seed meal	278 lbs.
Increase from use of nitrate of soda	428 lbs.
Nitrate better by	**150 lbs.**

Fertilizer experiments in Calhoun County

Plot No.	Amount fertilizer per acre	KIND	Jacksonville: Yield seed cotton per acre	Jacksonville: Increase over unfertilized plot	Jacksonville: Profit from fertilizer	Choccolocco: Yield seed cotton per acre	Choccolocco: Increase over unfertilized plot	Choccolocco: Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	712	64	—0.95	1080	184	$ 2.89
2	240	Acid phosphate	656	8	—1.42	1056	160	3.44
3	000	No fertilizer	648	----	------	896	----	------
4	200	Kainit	736	34	—0.31	952	64	0.65
5	200 240	Cotton seed meal Acid phosphate	952	196	1.59	1152	272	4.02
6	200 200	Cotton seed meal Kainit	912	102	—1.14	1112	240	3.28
7	000	No fertilizer	864	----	------	864	----	------
8	240 200	Acid phosphate Kainit	888	—2	—3.14	992	124	0.89
9	200 240 200	Cotton seed meal Acid phosphate Kainit	1192	276	2.75	1280	408	6.98
10	200 240 100	Cotton seed meal Acid phosphate Kainit	1256	314	4.67	1240	364	6.27
11	000	No fertilizer	968	----	------	880	----	------
12	240 100 100	Acid phosphate Kainit Nitrate of soda	1432	464	9.97	1360	480	10.48

CALHOUN COUNTY, 2 MILES NORTH OF CHOCCOLOCCO.

J. G. Borders.

Red chocolate valley land, with red clay subsoil.

This land has been in cultivation for fifty years. The preceding crop was cotton.

All fertilizers were profitable. The highest profits were made from complete fertilizers. The average estimated increase of seed cotton per acre was 189 pounds for cotton seed meal; 119 pounds for acid phosphate; and 55 pounds kainit. The highest profit afforded by single fertilizer was from acid phosphate, $3.44. The complete fertilizers were all profitable, the one containing nitrate of soda affording the largest

profit, namely, $10.48 per acre, or 215 per cent on the investment in fertilizers.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	184 lbs.
To acid phosphate plot	112 lbs.
To kainit plot	176 lbs.
To acid phosphate and kainit plot	284 lbs.
Average increase with cotton seed meal	**189 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	160 lbs.
To cotton seed meal plot	88 lbs.
To kainit plot	60 lbs.
To cotton seed meal and kainit plot	168 lbs.
Average increase with acid phosphate	**119 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	64 lbs.
To cotton seed meal plot	56 lbs.
To acid phosphate plot	—36 lbs.
To cotton seed meal and acid phosphate plot	136 lbs.
Average increase with kainit	**55 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	136 lbs.
From use of 100 pounds kainit	92 lbs.
Increase from use of cotton seed meal	284 lbs.
Increase from use of nitrate of soda	400 lbs.
Nitrate better by	**116 lbs.**

ETOWAH COUNTY, 5 MILES SOUTHWEST OF ATTALLA.

W. A. COLVIN.

Gray gravley land with yellow clay subsoil.

This land has been cleared for 30 years. The preceding crop was corn. Shedding was uniform. Damage from rust was most on Plot 5 and least on Plot 10. There was a good stand, and same number of plants on each plot. Complete fertilizers were most profitable. Plot 9 gave a profit of $5.44 per acre, or 89 per cent on the investment. The average increase of seed cotton per acre was 115 pounds for cotton seed meal; 93 pounds for phosphate; and 129 pounds for kainit.

Cotton seed meal was slightly more effective than nitrate of soda.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	144 lbs.
To acid phosphate plot	88 lbs.
To kainit plot	96 lbs.
To acid phosphate and kainit plot	132 lbs.
Average increase with cotton seed meal	**115 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	136 lbs.
To cotton seed meal plot	80 lbs.
To kainit plot	60 lbs.
To cotton seed meal and kainit plot	96 lbs.
Average increase with acid phosphate	**93 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	168 lbs.
To cotton seed meal plot	120 lbs.
To acid phosphate plot	92 lbs.
To cotton seed meal and acid phosphate plot	136 lbs.
Average increase with kainit	**129 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	136 lbs.
From use of 100 pounds kainit	108 lbs.
Increase from use of cotton seed meal	132 lbs.
Increase from use of nitrate of soda	88 lbs.
Cotton seed meal better by	**44 lbs.**

Fertilizer experiments in Etowah and Cherokee Counties

Plot No.	Amount fertilizer per acre	KIND	Attalla			Leesburg		
			Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	416	144	$ 1.61	976	352	$ 8.26
2	240	Acid phosphate	408	136	2 67	864	240	6.00
3	000	No fertilizer	272	----	------	----	----	------
4	200	Kainit	448	168	3.98	840	216	—5.51
5	200 240	Cotton seed meal Acid phosphate	512	224	2.49	984	360	6.84
6	200 200	Cotton seed meal Kainit	560	264	4.05	872	248	4.54
7	000	No fertilizer	304	----	------	624	----	------
8	240 200	Acid phosphate Kainit	544	228	4.22	736	112	0.50
9	200 240 200	Cotton seed meal Acid phosphate Kainit	688	360	5.44	920	296	3.39
10	200 240 100	Cotton seed meal Acid phosphate Kainit	672	332	5.24	1088	464	9.47
11	000	No fertilizer	352	----	------	----	----	------
12	240 100 100	Acid phosphate Kainit Nitrate of soda	640	288	4.34	1040	416	8.43

CHEROKEE COUNTY, 4 MILES EAST OF LEESBURG.

W. W. Ward.

Gray upland, red clay subsoil.

The preceding crop on this land was rye. This land has been in cultivation for 40 or 50 years. There was considerable rust on all plots, but Plot 5 was the most seriously attacked. There was no damage from worms. The stand was good.

All applications of fertilizers were profitable. The greatest profit was afforded by the complete fertilizer on Plot 10, which afforded a profit of $9.47 per acre, or 174 per cent on the investment in fertilizers. From the application of cotton seed meal alone a profit of $8.26 was realized, or 275 per cent on the investment. The average increase of seed cotton per acre

was 172 pounds for cotton seed meal; for acid phosphate 48 pounds; and a loss of 20 pounds for kainit.

Cotton seed meal was more profitable than nitrate of soda.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	352 lbs.
To acid phosphate plot	120 lbs.
To kainit plot	32 lbs.
To acid phosphate and kainit plot	184 lbs.
Average increase with cotton seed meal	**172 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	240 lbs.
To cotton seed meal plot	8 lbs.
To kainit plot	—104 lbs.
To cotton seed meal and kainit plot	48 lbs.
Average increase with acid phosphate	**48 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	216 lbs.
To cotton seed meal plot	—104 lbs.
To acid phosphate plot	—128 lbs.
To cotton seed meal and acid phosphate plot	—64 lbs.
Average increase with kainit	**—20 lbs.**
Increase from use of cotton seed meal	184 lbs.
Increase from use of nitrate of soda	136 lbs.
Cotton seed meal better by	**48 lbs.**

MORGAN COUNTY, 8 MILES SOUTHWEST OF HARTSELLE.

ROBERT F. ORR.

Clay loam with red subsoil.

This land has been cultivated for 75 or more years. The preceding crop was cotton. The stand was fairly good. No damage by insects were reported. Cotton seed meal gave the most profitable result. Acid phosphate and kainit did not pay. The average increase for cotton seed meal was 173 pounds of seed cotton per acre, against 2 pounds for acid phosphate, and a loss of 20 pounds where kainit was used. Cotton seed meal gave a profit of $3.66 per acre, or 122 per cent profit on the investment in fertilizers. On the whole, there was little profit from fertilizers in this experiment.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	208 lbs.
To acid phosphate plot	180 lbs.
To kainit plot	76 lbs.
To acid phosphate and kainit plot	228 lbs.
Average increase with cotton seed meal	**173 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	48 lbs.
To cotton seed meal plot	20 lbs.
To kainit plot	—106 lbs.
To cotton seed meal and kainit plot	46 lbs.
Average increase with acid phosphate	**2 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	78 lbs.
To cotton seed meal plot	—54 lbs.
To acid phosphate plot	—76 lbs.
To cotton seed meal and acid phosphate plot	—28 lbs.
Average increase with kainit	**—20 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	—28 lbs.
From use of 100 pounds kainit	—8 lbs.
Increase from use of cotton seed meal	228 lbs.
Increase from use of nitrate of soda	136 lbs.
Cotton seed meal better by	**92 lbs.**

Experiments in Limestone and Morgan Counties

Plot No.	Amount fertilizer per acre	KIND	ATHENS			HARTSELLE		
			Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs		Lbs.	Lbs	
1	200	Cotton seed meal	936	80	—0.44	640	208	$ 3.66
2	240	Acid phosphate	712	—144	—6.29	480	48	—0.14
3	000	No fertilizer	856	----	------	432	----	------
4	200	Kainit	672	—136	—5 75	560	78	1.10
5	200 240	Cotton seed meal Acid phosphate	984	224	2.49	760	228	2.62
6	200 200	Cotton seed meal Kainit	920	208	2.26	736	154	0.53
7	000	No fertilizer	664	----	------	632	----	----
8	240 200	Acid phosphate Kainit	824	160	2.04	632	—28	—3.98
9	200 240 200	Cotton seed meal Acid phosphate Kainit	968	304	3.65	888	200	0.32
10	200 240 100	Cotton seed meal Acid phosphate Kainit	960	296	4.09	936	220	1.66
11	000	No fertilizer	664	----	------	744	----	----
12	240 100 100	Acid phosphate Kainit Nitrate of Soda	848	184	1.01	872	128	—0.78

LIMESTONE COUNTY, 7 MILES EAST OF ATHENS.

FLETCHER BARKSDALE..

Gray clay loam with red subsoil.

This land has been cleared for 10 years. The stand was uniform. There was no rust, but some damage was done by the cotton caterpillar. The largest increases are from complete fertilizers and from a combination of acid phosphate and cotton seed meal. Apparently fertilizers used singly were not profitable. The average estimated increase of seed cotton per acre for cotton seed meal was 244 pounds; for acid phosphate 99 pounds; and for kainit 93 pounds.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	80 lbs.
To acid phosphate plot	368 lbs.
To kainit plot	344 lbs.
To acid phosphate and kainit plot	144 lbs.
Average increase with cotton seed meal	**224 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	—144 lbs.
To cotton seed meal plot	144 lbs.
To kainit plot	296 lbs.
To cotton seed meal and kainit plot	98 lbs.
Average increase with acid phosphate	**99 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	—136 lbs.
To cotton seed meal plot	128 lbs.
To acid phosphate plot	304 lbs.
To cotton seed meal and acid phosphate plot	80 lbs.
Average increase with kainit	**93 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit	80 lbs.
From use of 100 pounds kainit	72 lbs
Increase from use of cotton seed meal	144 lbs.
Increase from use of nitrate of soda	32 lbs.
Cotton seed meal better by	**112 lbs.**

MARSHALL COUNTY, 2½ MILES WEST OF BOAZ.

L. O. Cox.

Gray loam, yellow clay subsoil.

This land has only been cleared 8 years. The preceding crop was wheat. There was no damage reported from rust or insect attacks.

The complete fertilizers were the most profitable, Plot 10 affording a profit of $10.24, or 190 per cent on the investment in fertilizers. Of the fertilizers applied singly acid phosphate afforded the largest profit, $4.98 per cent, or 231 per cent on the investment. The average estimated increase of seed cotton per acre was 184 pounds for cotton seed meal; 205 pounds for acid phosphate, and 7 pounds for kainit. From the results obtained from kainit there is apparently a sufficient amount of potash in the soil. Cotton seed meal was more profitable than nitrate of soda.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	240 lbs.
To acid phosphate plot	244 lbs.
To kainit plot	164 lbs.
To acid phosphate and kainit plot	88 lbs.
Average increase with cotton seed meal	**184 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	208 lbs.
To cotton seed meal plot	212 lbs.
To kainit plot	238 lbs.
To cotton seed meal and kainit plot	162 lbs.
Average increase with acid phosphate	**205 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	50 lbs.
To cotton seed meal plot	—26 lbs.
To acid phosphate plot	80 lbs.
To cotton seed meal and acid phosphate plot	—76 lbs.
Average increase with kainit	**7 lbs.**
Increase from use of cotton seed meal	88 lbs.
Increase from use of nitrate of soda	32 lbs.
Cotton seed meal better by	**56 lbs.**

Fertilizer experiments in Marshall and Blount Counties

Plot No.	Amount fertilizer per acre.	KIND	Boaz			Oneonto		
			Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		*Lbs.*	*Lbs.*		*Lbs.*	*Lbs.*	
1	200	Cotton seed meal	800	240	$ 4.68	912	328	$ 7.50
2	240	Acid phosphate	768	208	4.98	1000	416	11.63
3	000	No fertilizer	560	----	------	584	----	------
4	200	Kainit	616	50	0.20	672	130	2.76
5	200 240	Cotton seed meal Acid phosphate	1024	452	9.78	1112	612	14.90
6	200 200	Cotton seed meal Kainit	792	214	2.45	720	262	3.90
7	000	No fertilizer	584	----	------	416	----	------
8	240 200	Acid phosphate Kainit	856	288	6.14	960	558	14.78
9	200 240 200	Cotton seed meal Acid phosphate Kainit	928	376	5.95	1128	740	17.60
10	200 240 100	Cotton seed meal Acid phosphate Kainit	1024	488	10.24	1144	770	19.26
11	000	No fertilizer	520	----	------	360	----	----
12	240 100 100	Acid phosphate Kainit Nitrate of soda	952	432	8.94	800	440	9.20

BLOUNT COUNTY, 6 MILES WEST OF ONEONTO.

W. F. Tidwell.

Gray gravely loam, with silt and stone subsoil.

This land has been in cultivation for 25 years. The preceding crop was corn. There was no damage from rust. The most profitable fertilizer was the application on Plot 10, which gave an estimated profit of $19.26 per acre. The most profitable single fertilizer was acid phosphate, which gave an estimated profit of $11.63 per acre.

The average estimated increase of seed cotton per acre was 210 pounds for cotton seed meal; for acid phosphate 402 pounds; for kainit 84 pounds.

Increase of seed cotton per acre when cotton seed meal was added:

To unfertilized plot	328 lbs.
To acid phosphate plot	196 lbs.
To kainit plot	132 lbs.
To acid phosphate and kainit plot	182 lbs.
Average increase with cotton seed meal	**210 lbs.**

Increase of seed cotton per acre when acid phosphate was added:

To unfertilized plot	416 lbs.
To cotton seed meal plot	284 lbs.
To kainit plot	428 lbs.
To cotton seed meal and kainit plot	478 lbs.
Average increase with acid phosphate	**402 lbs.**

Increase of seed cotton per acre when kainit was added:

To unfertilized plot	130 lbs.
To cotton seed meal plot	—66 lbs.
To acid phosphate plot	142 lbs.
To cotton seed meal and acid phosphate plot	128 lbs.
Average increase with kainit	**84 lbs.**

Increase from use of different quantities of kainit:

From use of 200 pounds kainit	128 lbs.
From use of 100 pounds kainit	158 lbs.

LIMESTONE COUNTY, 1 MILE SOUTHEAST OF ATHENS.

EIGHTH DISTRICT AGRICULTURAL SCHOOL.

Red clay loam, red clay subsoil.

There was no damage from rust. There was very little damage done by the cotton caterpillar.

The highest profit was obtained on Plot 9, where a complete fertilizer was used. Among the single fertilizers, cotton seed meal used alone gave the highest profit. Kainit and acid phosphate were not profitable when used alone. The average estimated increase of seed cotton per acre was 149 pounds for cotton seed meal; 82 pounds for acid phosphate, and 38 pounds for kainit.

Nitrate of soda applied June 27 was practically equal to cotton seed meal.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	144 lbs.
To acid phosphate plot	76 lbs.
To kainit plot	132 lbs.
To acid phosphate and kainit plot	244 lbs.
Average increase with cotton seed meal	**149 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	16 lbs.
To cotton seed meal plot	52 lbs.
To kainit plot	74 lbs.
To cotton seed meal and kainit plot	186 lbs.
Average increase with acid phosphate	**82 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	—30 lbs.
To cotton seed meal plot	—42 lbs.
To acid phosphate plot	28 lbs.
To cotton seed meal and acid phosphate plot	196 lbs.
Average increase with kainit	**38 lbs.**
Increase from use of cotton seed meal	244 lbs.
Increase from use of nitrate	248 lbs.
Nitrate better by	**4 lbs.**

Fertilizer experiments in Limestone and Winston Counties

Plot No.	Amount fertilizer per acre	KIND	ATHENS			NAUVOO		
			Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	896	144	$ 1.61	648	232	$ 4.42
2	240	Acid phosphate	768	16	—1.17	776	360	9.44
3	000	No fertilizer	752	----	------	416	----	------
4	200	Kainit	752	—30	—2.36	496	64	0.65
5	200 240	Cotton seed meal Acid phosphate	904	92	—1.74	888	440	9.40
6	200 200	Cotton seed meal Kainit	944	102	—1.14	600	136	—0.15
7	000	No fertilizer	872	----	------	480	----	------
8	240 200	Acid phosphate Kainit	968	44	—1.67	760	280	5.88
9	200 240 200	Cotton seed meal Acid phosphate Kainit	1264	288	3.14	728	248	2.86
10	200 240 100	Cotton seed meal Acid phosphate Kainit	1208	180	0.38	656	176	0.25
11	000	No fertilizer	1080	----	------	----	----	------
12	240 100 100	Acid phosphate Kainit Nitrate of soda	1264	184	1.01	688	208	1.78

WINSTON COUNTY, 2 MILES NORTHWEST OF NAUVOO.

D. C. WAKEFIELD.

Dark sandy loam "second bottom," with yellow clay subsoil.

This field has been in cultivation only 4 years. Its original growth was short leaf pine and oak. Corn was the preceding crop. The land was turned with a one-horse plow and then subsoiled with a scooter. The stand was uniform. Cotton rust occurred on all plots and was estimated as reducing the yield one-third. There was no notable insect injury.

Acid phosphate was the fertilizer chiefly needed, affording an average increase in seed cotton of 224 pounds per acre, as compared with an increase of 88 pounds for cotton seed meal, and

a loss of 76 pounds from the use of kainit. Acid phosphate used alone gave a net profit of $9.44 per acre, or 562 per cent on the investment in fertilizers. The mixture of phosphate and cotton seed meal gave a profit of $9.40 per acre, or 201 per cent on the investment in fertilizers.

Nitrate of soda applied June 24 was more effective than was cotton seed meal.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	232 lbs.
To acid phosphate plot	80 lbs.
To kainit plot	72 lbs.
To acid phosphate and kainit plot	—32 lbs.
Average increase with cotton seed meal	**88 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	360 lbs.
To cotton seed meal plot	208 lbs.
To kainit plot	216 lbs.
To cotton seed meal and kainit plot	112 lbs.
Average increase with acid phosphate	**224 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	64 lbs.
To cotton seed meal plot	—96 lbs.
To acid phosphate plot	—80 lbs.
To cotton seed meal and acid phosphate plot	—192 lbs.
Average increase with kainit	**—76 lbs.**

LAUDERDALE COUNTY, 2 MILES WEST OF FLORENCE.

W. R. Cox.

Clay soil with red clay subsoil.

This land has been cleared for 65 years. The preceding crop was cotton. There was no damage reported from rust. The cotton caterpillar destroyed about 33⅓ per cent of the entire crop. The stand was good, except a few missing plants in Plot 1. Clay from the ditch was thrown on Plot 12, which seemed to decrease the yield on that plot.

It appears from this experiment that this land does not need kainit. Cotton seed meal and acid phosphate were profitable when used alone or in pairs. The highest estimated increased yield of seed cotton per acre was 372 pounds on Plot 10. A profit of $6.59 per acre, or 122 per cent, was obtained on this plot.

The average estimated increase of seed cotton per acre was 183 pounds for cotton seed meal; 129 pounds for acid phosphate; and an average loss of 18 pounds per acre for kainit.

Cotton seed meal was more effective than nitrate of soda.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	136 lbs.
To acid phosphate plot	148 lbs.
To kainit plot	140 lbs.
To acid phosphate and kainit plot	306 lbs.
Average increase with cotton seed meal	**183 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	104 lbs.
To cotton seed meal plot	116 lbs.
To kainit plot	64 lbs.
To cotton seed meal and kainit plot	230 lbs.
Average increase with acid phosphate	**129 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	—38 lbs.
To cotton seed meal plot	—34 lbs.
To acid phosphate plot	—78 lbs.
To cotton seed meal and acid phosphate plot	80 lbs.
Average increase with kainit	**—18 lbs.**

Increase from use of different quantities of kainit:

From use of 200 pounds kainit, in complete fertilizer.. 80 lbs.

From use of 100 pounds kainit in complete fertilizer.. 122 lbs.

Experiments at Florence, Lauderdale County

			2 Miles West			5 Miles North		
Plot No.	Amount fertilizer per acre	KIND	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	696	136	$ 1.35	640	216	$ 3.91
2	240	Acid Phosphate	664	104	1.65	592	168	3.70
3	000	No fertilizer	560	----	------	424	----	------
4	200	Kainit	552	—38	—2.62	400	—76	—3.83
5	200 240	Cotton seed meal Acid Phosphate	872	252	3.38	736	208	1.98
6	200 200	Cotton seed meal Kainit	752	102	—1 14	752	172	1.00
7	000	No fertilizer	680	----	------	632	----	------
8	240 200	Acid Phosphate Kainit	672	26	—2.25	584	18	—2.50
9	200 240 200	Cotton seed meal Acid Phosphate Kainit	944	332	4.54	768	268	2.50
10	200 240 100	Cotton seed meal Acid Phosphate Kainit	952	374	6.59	808	374	6.59
11	000	No fertilizer	544	----	------	368	----	------
12	200 100 100	Acid Phosphate Kainit Nitrate of soda	544	----	------	640	272	3.82

LAUDERDALE COUNTY, 5 MILES NORTH OF FLORENCE.

J. F. Underwood.

Gray sandy loam with yellow clay subsoil.

This land has been cleared for 20 years. The preceding crop was corn. There was no damage from rust. Boll worms did some damage. The stand was good.

The most profitable application was the complete fertilizer, which afforded a profit of $6.59 per acre, or a profit of 82 per cent on the investment in fertilizers. The average estimated

increase of seed cotton per acre was 189 pounds for cotton seed meal; 88 pounds for acid phosphate. There was, on the average, a loss of 53 pounds where kainit was used.

Cotton seed meal was superior to nitrate of soda.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	216 lbs.
To acid phosphate plot	40 lbs.
To kainit plot	248 lbs.
To acid phosphate and kainit plot	250 lbs.
Average increase with cotton seed meal	**189 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	168 lbs.
To cotton seed meal plot	—8 lbs.
To kainit plot	94 lbs.
To cotton seed meal and kainit plot	96 lbs.
Average increase with acid phosphate	**88 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	—76 lbs.
To cotton seed meal plot	—44 lbs.
To acid phosphate plot	—150 lbs.
To cotton seed meal and acid phosphate plot	60 lbs.
Average increase with kainit	**—53 lbs.**
Increase from use of different quantities of kainit:	
From use of 200 pounds kainit in complete fertilizer	60 lbs.
From use of 100 pounds kainit in complete fertilizer	106 lbs.
Increase from use of cotton seed meal	250 lbs.
Increase from use of nitrate	148 lbs.
Cotton seed meal better by	**102 lbs.**

INCONCLUSIVE EXPERIMENTS.

COLBERT COUNTY, 2 MILES EAST OF TUSCUMBIA.

G. H. HARRIS.

Dark clay loam, valley soil; red clay subsoil.

This land has been in cultivation for a long time. The preceding crop was oats. There was no shedding or rust, but the cotton caterpillar damaged the crop about 60 per cent, rendering the results inconclusive. (See page 50.) The most profitable application was on Plot 12, affording a profit of $4.34, or 89 per cent on the cost of fertilizers.

The average estimated increase of seed cotton per acre due to the use of cotton seed meal was 69 pounds; 108 pounds for acid phosphate; and a loss of 6 pounds for kainit.

Nitrate of soda applied June 15 was more effective than was cotton seed meal.

Experiments at Tuscumbia

Plot No.	Amount fertilizer per acre	KIND	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.	
1	200	Cotton seed meal	184	80	$ 0.44
2	240	Acid phosphate	208	104	1.65
3	000	No fertilizer	104	----	------
4	200	Kainit	152	46	0.07
5	200 240	Cotton seed meal Acid phosphate	328	216	2.23
6	200 200	Cotton seed meal Kainit	168	52	—2.74
7	000	No fertilizer	120	----	------
8	240 200	Acid phosphate Kainit	208	96	—0.01
9	200 240 200	Cotton seed meal Acid phosphate Kainit	296	192	0.06
10	200 240 100	Cotton seed meal Acid phosphate Kainit	312	216	1.53
11	000	No fertilizer	88	----	------
12	240 100 100	Acid phosphate Kainit Nitrate of soda	376	288	4.34

In MADISON COUNTY, 4 miles south of Gurley, C. T. Butler conducted an experiment on light red clay loam, with red clay subsoil. The results were inconclusive, partly because of injuries by the cotton caterpillar. See page 55.

In MADISON COUNTY, 3 miles northwest of Huntsville, W. W. Fox conducted a fertilizer experiment on gray land with red clay subsoil. This proved inconclusive because of want of uniformity in the fertility of the land. Apparently

MARION COUNTY, 6 MILES NORTHEAST OF GLEN

the most profitable fertilizer was cotton seed meal. See page 55

ALLEN.

W. P. LETSON.

Dark sandy loam, red clay subsoil.

This land has been cleared for 30 years. The preceding crop was cotton. There was no damage from rust or insect attacks. There was a perfect stand. The plots in this experiment were $\frac{1}{10}$-acre each, instead of $\frac{1}{8}$, as were the regular plots, but received the full amount of fertilizer. The yields were so irregular that no definite conclusion can be drawn, except that cotton seed meal and nitrate of soda were profitable.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	450 lbs.
To acid phosphate plot	200 lbs.
To kainit plot	201 lbs.
To acid phosphate and kainit plot	263 lbs.
Average increase with cotton seed meal	**279 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	100 lbs.
To cotton seed meal plot	—150 lbs.
To kainit plot	—50 lbs.
To cotton seed meal and kainit plot	12 lbs.
Average increase with acid phosphate	**—10 lbs.**

Increase of seed cotton per acre when kainit was added:

To unfertilized plot	12 lbs.
To cotton seed meal plot	—237 lbs.
To acid phosphate plot	—138 lbs.
To cotton seed meal and acid phosphate plot	—75 lbs.
Average increase with kainit	**—110 lbs.**
Increase from use of cotton seed meal	263 lbs.
Increase from use of nitrate of soda	285 lbs.
Nitrate better by	**22 lbs.**

Inconclusive experiments in Marion and Tallapoosa Counties

			6 Miles East of Glen Allen			4 Miles South of Dadeville			
Plot No.	Amount fertilizer per acre	KIND	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer	Amount fertilizer per acre	Yield seed cotton per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Lbs.	Lbs.		Lbs.	Lbs.	Lbs.	
1	250	Cotton seed meal	1200	450	$10.65	300	1104	240	$ 3.18
2	300	Acid phosphate	850	100	1.10	360	924	60	—0.58
3	000	No fertilizer	750	----	------	000	864	----	------
4	250	Kainit	750	12	—1.37	300	924	63	—0.08
5	250	Cotton seed meal	1025	300	3.75	300	1140	282	2.00
	300	Acid phosphate				360			
6	250	Cotton seed meal	925	213	1.32	300	1176	321	4.67
	250	Kainit				300			
7	000	No fertilizer	700	----	------	000	852	----	------
8	300	Acid phosphate	650	—38	—5.07	360	972	123	—0.68
	250	Kainit				300			
9	250	Cotton seed meal	900	225	—0 40	300	1368	522	7.58
	300	Acid phosphate				360			
	250	Kainit				300			
10	250	Cotton seed meal	940	278	2.17	300	1236	393	4.51
	300	Acid phosphate				360			
	125	Kainit				150			
11	000	No fertilizer	650	----	------	000	840	----	------
12	300	Acid phosphate	950	300	3.50	360	1272	432	6.50
	125	Kainit				150			
	125	Nitrate of soda				150			

TALLAPOOSA COUNTY, 4 MILES SOUTH OF DADEVILLE.

J. D. WILLIAMS.

Red loam, red clay subsoil.

This land has been in cultivation for about 20 years. The preceding crop was oats. Considerable damage was done by rust on Plots 9 and 10, and slight damage was done by wilt. There was a nearly perfect stand.

All of the complete fertilizers were profitable, as were all other plots where cotton seed meal was added. Cotton seed meal, when applied alone, gave a profit of $3.18 or 76 per cent on the investment. The average estimated increase of seed cotton per acre was 280 pounds for cotton seed meal; 91 pounds for acid phosphate; and 112 pounds for kainit. The plots in this experiment were only $\frac{1}{12}$-acre, instead of $\frac{1}{8}$ acre as directed, making the rate of fertilization heavier; and hence the results cannot be compared with those of other experiments reported.

Increase of seed cotton per acre when cotton seed meal was added:	
To unfertilized plot	240 lbs.
To acid phosphate plot	222 lbs.
To kainit plot	258 lbs.
To acid phosphate and kainit plot	399 lbs.
Average increase with cotton seed meal	**280 lbs.**
Increase of seed cotton per acre when acid phosphate was added:	
To unfertilized plot	60 lbs.
To cotton seed meal plot	42 lbs.
To kainit plot	60 lbs.
To cotton seed meal and kainit plot	201 lbs.
Average increase with acid phosphate	**91 lbs.**
Increase of seed cotton per acre when kainit was added:	
To unfertilized plot	63 lbs.
To cotton seed meal plot	81 lbs.
To acid phosphate plot	63 lbs.
To cotton seed meal and acid phosphate plot	240 lbs.
Average increase with kainit	**112 lbs.**

Increase from use of different quantities of kainit:	
To use of 200 pounds kainit	240 lbs.
To use of 100 pounds kainit	111 lbs.
Increase from use of cotton seed meal	399 lbs.
Increase from use of nitrate of soda	438 lbs.
Nitrate better by	**39 lbs.**

In CHILTON COUNTY, E. H. Parrish, at Clanton, made an experiment, on gray sandy land, which proved inconclusive because of variation in fertility. See page 55.

In CHILTON COUNTY, 4½ miles northwest of Jemison, J. D. C. Scott conducted an experiment on gray clay loam. This experiment is counted inconclusive because of want of uniformity in the land and because the plots were only 2 rows wide. See page 55.

Near Centersville, BIBB COUNTY, J. H. Thompson conducted a fertilizer test, on dark gray soil. This experiment was rendered inconclusive by the cotton caterpillars. See page 55.

In JACKSON COUNTY, 5 miles northeast of Stevenson, J. C. Talley conducted an inconclusive fertilizer test. See page 56.

In CLEBURNE COUNTY, near Heflin, J. W. Norton conducted an exeriment which, because of irregularity in the fertility of the land, proved inconclusive. See page 56.

In BIBB COUNTY, near Randolph, M. J. Payne conducted an experiment which proved inconclusive because of irregularity in yield of plots. See page 56.

In CLAY COUNTY, ¼ mile south of Ashland, C. F. Striplin conducted an experiment on gray sandy loam, with red subsoil. This experiment proved inconclusive, apparently because of want of uniformity in the different plots. See page 56.

In CLAY COUNTY, 4 miles east of Ashland, J. R. Carpenter, conducted a fertilizer experiment on gray loam, with clay subsoil. The lightning and caterpillars rendered the test inconclusive. See page 56.

In MORGAN COUNTY, 3 miles southwest of New Decatur, L. L. Pepper conducted an experiment on red clay loam, with red clay subsoil. This proved inconclusive, probably because of the variations in the fertility of certain of the plots. See page 56.

Inconclusive fertilizer experiments in Madison, Chilton and Bibb Counties

Plot No.	Amount fertilizer per acre	KIND	Gurley		Huntsville		Clanton (Parrish)	Jemison		Centerville	
			Yield seed cotton per acre	Increase over unfertilized plot	Yield seed cotton per acre	Increase over unfertilized plot	Yield seed cotton per acre	Yield seed cotton per acre	Increase over unfertilized plot	Yield seed cotton per acre	Increase over unfertilized plot
	Lbs.		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	200	Cotton seed meal	592	208	824	464	1000	1016	264	544	200
2	240	Acid phosphate	512	128	432	72	984	824	72	432	88
3	000	No fertilizer	384	----	360	----	704	752	----	344	----
4	200	Kainit	536	138	464	56	720	816	52	528	148
5	200	Cotton seed meal	608	196	672	216	736	760	—16	720	304
	240	Acid phosphate									
6	200	Cotton seed meal	632	206	632	128	616	1104	316	768	316
	200	Kainit									
7	000	No fertilizer	440	----	552	----	480	800	----	488	----
8	240	Acid phosphate	600	140	568	34	568	1064	260	648	162
	200	Kainit									
9	200	Cotton seed meal	664	184	616	100	664	1248	440	576	92
	240	Acid phosphate									
	200	Kainit									
10	200	Cotton seed meal	632	132	648	150	680	1256	444	760	278
	240	Acid phosphate									
	100	Kainit									
11	000	No fertilizer	520	----	480	----	504	816	----	480	----
12	240	Acid phosphate									
	100	Kainit			664	184	792	1296	480	824	344
	100	Nitrate of soda	----	----							

Inconclusive fertilizer experiments at Stevenson, Heflin, Randolph, Ashland and New Decatur

Plot No.	Amount fertilizer per acre	KIND	Stevenson		Heflin		Randolph		¼ Mi. South of Ashland		4 Miles East of Ashland		New Decatur	
			Yield seed cotton per acre	Increase over unfertilized plot	Yield seed cotton per acre	Increase over unfertilized plot	Yield seed cotton per acre	Increase over unfertilized plot	Yield seed cotton per acre	Increase over unfertilized plot	Yield seed cotton per acre	Increase over unfertilized plot	Yield seed cotton per acre	Increase over unfertilized plot
	Lbs.		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
1	200	Cotton seed meal	----	----	568	----	720	258	1280	640	360	104	360	----
2	240	Acid phosphate	----	----	552	----	596	144	928	288	344	88	432	8
3	000	No fertilizer	592	----	----	----	452	----	640	----	256	----	424	----
4	200	Kainit	608	52	424	----	684	145	592	—8	368	116	448	26
5	200 240	Cotton seed meal Acid phosphate	704	184	648	----	664	—38	752	192	576	328	536	116
6	200 200	Cotton seed meal Kainit	568	84	678	----	672	—41	832	312	496	252	488	70
7	000	No fertilizer	448	----	368	----	800	----	480	----	240	----	416	----
8	240 200	Acid phosphate Kainit	816	378	520	108	646	—126	624	124	368	122	496	52
9	200 240 200	Cotton seed meal Acid phosphate Kainit	632	204	600	144	886	142	656	136	464	216	632	160
10	200 240 100	Cotton seed meal Acid phosphate Kainit	552	34	680	180	1062	351	816	276	536	284	616	116
11	000	No fertilizer	408	----	544	----	688	----	560	----	256	----	528	----
12	240 100 100	Acid phosphate Kainit Nitrate of soda	552	144	680	136	896	208	1152	592	440	184	864	336