

**BULLETIN No. 181**

**DECEMBER, 1914**

**ALABAMA**

**Agricultural Experiment Station**

OF THE

**Alabama Polytechnic Institute**

**A U B U R N**

---

**Local Fertilizer Experiments With Corn in  
South Alabama in 1911, 1912, 1913 and 1914**

---

By

**J. F. DUGGAR**

and

**J. T. WILLIAMSON**

---

1914

Post Publishing Company  
Opelika, Ala.

COMMITTEE OF TRUSTEES ON EXPERIMENT STATION.

HON. R. F. KOLB .....	Montgomery
HON. H. L. MARTIN .....	Ozark
HON. A. W. BELL .....	Anniston
HON. J. A. ROGERS .....	Gainesville

STATION STAFF

C. C. THACH, President of the College.

J. F. DUGGAR, Director of Experiment Station and Extension.

AGRICULTURE:

J. F. Duggar, Agriculturist.  
E. F. Cauthen, Associate.  
M. J. Funchess, Associate.  
J. T. Williamson, Field Agent.  
D. J. Burluson, Assistant  
O. H. Sellers, Assistant.  
H. B. Tisdale, Assistant.

BOTANY:

J. S. Caldwell, Botanist.  
A. B. Massey, Assistant.

PLANT PATHOLOGY:

F. A. Wolf, Pathologist.

VETERINARY SCIENCE:

C. A. Cary, Veterinarian.  
H. C. Wilson, Hog Cholera Expert.\*  
L. F. Pritchett, Assistant.

HORTICULTURE:

Ernest Walker, Horticulturist.  
J. C. C. Price, Associate.  
G. V. Stelzenmuller, Field Agent.

CHEMISTRY:

J. T. Anderson, Chemist, Soils and Crops.  
C. L. Hare, Physiological Chemist.  
S. Adler, Assistant.

ENTOMOLOGY:

W. E. Hinds, Entomologist.  
J. E. Buck, Assistant.  
G. W. Ells, Field Agent.

JUNIOR AND HOME ECONOMICS EXTENSION:

L. N. Duncan, Superintendent.\*  
Miss Madge J. Reese, Assistant.\*  
J. C. Ford, Assistant.\*  
I. B. Kerlin, Assistant.\*  
Nellie M. Tappan, Home Economics.\*\*

ANIMAL INDUSTRY:

G. S. Templeton, Animal Husbandman.  
E. S. Girton, Assistant.  
N. A. Negley, Assistant.\*  
E. Gibbens, Assistant.

\* In co-operation with United States Department of Agriculture.

\*\* In Co-operation with Alabama Girl's Technical Institute.

# LOCAL FERTILIZER EXPERIMENTS WITH CORN IN SOUTH ALABAMA IN 1911-1912-1913-1914

By

J. F. DUGGAR AND J. T. WILLIAMSON.

---

## CONCLUSIONS AND RECOMMENDATIONS.

From these experiments, most of which were conducted on poor land in dry seasons, it appears that under these conditions, reliance should not be placed chiefly on commercial fertilizers in growing corn. Commercial fertilizers have proved much more effective and profitable for cotton than for corn.

On nearly all experiments nitrogen, whether employed as cotton seed meal or as nitrate of soda, afforded a fair increase in the yield of corn. In 60 per cent of these separate experiments the increase from applying 200 pounds of cotton seed meal alone per acre, was sufficient to afford a profit, even under these unfavorable conditions of soil and climate.

Acid phosphate used alone, and in various combinations, usually afforded a small increase in the yield of corn, but this increase was usually not sufficient under these unfavorable conditions to afford a profit.

For corn, kainit was even less effective and more generally unfavorable than was acid phosphate.

When 200 pounds of cotton seed meal, applied before planting, was compared with 100 pounds of nitrate of soda, applied when corn plants were several feet high, nitrate of soda afforded a larger increase. Nitrate of soda afforded, on the average, and in most experiment, a profitable increase in yield.

In these experiments commercial fertilizers usually increased the yield to at least as large an extent on land capable of producing 25 to 30 bushels of corn without fertilizer as on poorer land; this suggests that it was the supply of moisture in the richer soils, rather than the fertilizers, which determined yield in these unfavorable seasons. This argues for the plowing under of organic matter in connection with the use of

only moderate amounts of commercial fertilizers for corn.

Considering other experiments, as well as these, the writers make the following general recommendations regarding the fertilization of corn:

(1) That so far as practicable stable manure and the remains of soil-improving plants, such as cowpeas, velvet beans and crimson clover, be preferred to most kinds of commercial fertilizers.

(2) That the amounts of commercial fertilizer be limited.

(3) That most of the money invested in fertilizers be used in the purchase of nitrogen.

(4) That where a pound of nitrogen can be bought in nitrate of soda at the same or at a lower price than in cotton seed meal, the preference be given to nitrate of soda as a fertilizer.

(5) That in view of results of unpublished experiments to determine the best time of applying nitrate of soda it is recommended that it be applied as a side application when the corn plants are between 2-½ and 4 feet high.

(6) That on soils known to be deficient in phosphoric acid, and especially where heavy applications have not been applied to preceding crops, a moderate amount of acid phosphate be employed.

(7) That no investment be made in potash as a fertilizer for corn, especially at the high prices which will doubtless prevail in 1915, except where experience has shown the need of it.

For the farmer wishing to make only a small investment in the fertilization of corn the following formula, for corn grown under average conditions, is suggested:

100 pounds acid phosphate, before planting or by the time plants are 2-½ feet high.

60-100 pounds nitrate of soda, applied when the plants are 2-½ to 4 feet high.

Or,

120 to 200 pounds cotton seed meal, applied at the same time as the phosphate, may be substituted for the nitrate of soda.

## INTRODUCTORY.

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

The results recorded in this bulletin were obtained in fertilizer experiments conducted with funds appropriated by the Legislature of Alabama, in February 1911, to the Experiment Station for making local experiments with crops, fertilizers, fruits, live stock, insects, plant diseases, etc.

This bulletin deals with fertilizer experiments carried to a conclusion in 1911-12-13-14 in the southern half of the State. For convenience the counties grouped together in this bulletin are those lying within or wholly south of the Central Prairie or Lime Region.

The results of fertilizer experiments made in the counties lying north of the Central Prairie Region will appear in Bulletin No. 182 of this Station.

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.

Local fertilizer experiments as now conducted are made by farmers especially recommended as being men likely to take the necessary pains to secure accurate results.

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 the experiments here published as often as practicable.

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.

In order to meet these conditions it was often necessary to select *very old, "run-down" cotton land on which no effort for improvement had been made.* This largely explains why the yields were not higher. 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 2 to 3 feet high.

Bulletins thus far published in this series detailing the results of local fertilizer experiments with cotton on this uniform plan are the following:

For South Alabama—Bulletins No. 160, 169 and 174.

For North Alabama—Bulletins No. 162, 170 and 175.

The experiments with corn detailed in this bulletin are on exactly the same plan as the fertilizer experiments heretofore conducted with cotton.

FIELD EXPERIMENTS REPEATED OFTEN, THE ONLY MEANS  
OF DETERMINING WHAT FERTILIZERS A GIVEN  
TYPE OF SOIL REQUIRES.

The reader should bear in mind that there are great numbers of different soils in Alabama, and that even the same soil would give different results in different years, depending on how it had been cropped, fertilized and cared for in the year or two immediately preceding the test.

It is the purpose of the authors in later years to publish bulletins classifying the soils on which all these tests are made and drawing conclusions relative to the needs of each class of soils. However, before this can be safely done, these experiments must be often repeated, so that the average results may teach clearly the fertilizer requirements of each distinct type of soil.

Averaging the results obtained on dissimilar soils will not afford the desired information. Neither will chemical analysis of the soil indicate what fertilizers are needed.

WEATHER CONDITIONS.

The average rainfall in the part of Alabama covered by these experiments is given below by months, according to data furnished by the Alabama Weather Service. In 1913 and 1914 there were long periods of drought in the months of April, May and June, and to a less extent in May 1911 and 1912.

	1911	1912	1913	1914
January .....	3.93	6.70	4.97	2.26
February .....	2.50	5.13	5.45	4.72
March .....	2.43	9.71	11.59	2.85
April .....	7.32	11.77	2.47	3.11
May .....	3.17	3.52	2.42	0.85

June	3.94	5.05	3.51	2.45
July	5.17	4.98	5.84	3.89
August	5.22	5.66	2.58	6.76
September	2.67	5.44	7.88	6.02
October	2.57	3.11	2.24	2.71
November	4.35	2.41	1.41	4.99
December	7.29	6.77	2.84	4.39
Total 12 Months	50.56	70.25	53.20	44.80
Total May, June and July	12.28	13.55	11.77	7.19

The total rainfall for the months of May, June and July, and its distribution are probably the most important climatic factors in determining the yield of corn.

Hence, it should be noted that for these critical months of the growing season, the rainfall was as follows:

1911	12.28 inches
1912	13.55 inches
1913	11.77 inches
1914	7.19 inches

For corn, 1913 and 1914 were extremely dry seasons, so that fertilizers failed to exert their full effect. Moreover, the month of May had a slightly deficient rainfall, both in 1913 and 1914. Hence, the yields reported in this bulletin are below the normal.

#### LOCATION OF EXPERIMENTS.

<i>County</i>	<i>Post Office</i>	<i>Name</i>	<i>Page</i>
Baldwin	Bay Minette	Mrs. F. J. Arnold	178
Baldwin	Robertsdale	J. A. Cooper	161
Barbour	Eufaula	L. B. Green	178
Choctaw	Silas	J. D. Mason	179
Choctaw	Naheola	W. R. Christopher	170-179
Coffee	Enterprise	J. W. Harry	169
Coffee	Elba	T. P. Windham	170
Coffee	Enterprise	J. W. Meredith	177
Conecuh	Evergreen	J. D. McCrory & Son	164
Crenshaw	Luverne	G. W. Turner	169
Crenshaw	Brantley	J. W. Ellis	168
Elmore	Eclectic	W. A. Patterson	175
Elmore	Tallassee	Mitchell Pittman	178
Escambia	Nokomis	W. B. Rhodes	162
Escambia	Atmore	J. W. Jones	162
Escambia	Canoe	F. J. German	163
Escambia	Atmore	C. A. McNeil	163
Geneva	Hartford	Geneva Co. High School	165
Geneva	Slocomb	J. G. Lewis	166
Hale	Greensboro	P. A. Tutwiler, Jr.	171
Henry	Headland	J. T. Knowles	167
Henry	Headland	R. W. Ward	165
Houston	Dothan	W. A. Slay	178
Lee	Notasulga	Geo. Kimbrough	176
Lowndes	Letohatchie	J. B. Mitchell, Jr.	174
Marengo	Demopolis	G. W. Allen	172
Marengo	Linden	J. T. Scogin	177

Mobile	Irvington	Irvington Land Co.	178
Perry	Hamburg	S. A. Crawford	173-178
Washington	Leroy	T. L. Porter	179
Washington	Leroy	J. M. Pelham, Sr.	160

Experiments were begun in the counties named below, but for various reasons, satisfactorily explained at the time, they were not carried to a conclusion.

County	Post Office	Name	Year
Baldwin	Bay Minette	Fred C. Hall	1913
Baldwin	Robertsdale	A. N. Hayselden	1912
Bullock	Union Springs	A. H. Feagin	1914
Bibb	Centerville	J. J. Ellison	1912
Clay	Lineville	V. W. White	1912
Coffee	Elba	P. J. Ham	1912
Covington	Andalusia	W. N. Rushton	1914
Crenshaw	Luverne	G. W. Turner	1913
Dallas	Massillon	S. W. John	1913
Dallas	Selma	W. J. Templin	1914
Macon	Liverpool	W. W. Thompson	1912
Macon	Tuskegee	J. M. Roberts	1914
Pike	Troy	P. F. Smith	1912
Pike	Troy	H. v. & T. V. Ballard	1914
Sumter	Geiger	E. A. Gilbert	1914
Sumter	Geiger	A. J. Payne	1913-1914
Wilcox	Camden	C. E. Tait	1914

#### THE FERTILIZERS USED.

The following prices are used, as representing a rather high average cash price in local markets during the last few years, 1912, 1913 and 1914:

	Per Ton
Acid Phosphate (16 per cent available)	\$14.00
Cotton Seed Meal	\$30.00
Kainit	\$14.00
Nitrate of Soda (\$50 in 1911 and 1912)	\$60.00

Prices naturally vary in different localities. 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.\*

#### PRICE ASSUMED FOR CORN.

The price assumed per bushel of corn is 75 cents in 1911, 80 cents in 1912, and 90 cents in both 1913 and 1914.

\*For the standard method employed in this bulletin for calculating the increased yield, see Alabama Station Bulletin 160 or 162.



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

Plot No.	FERTILIZERS		MIXTURE CONTAINS			COST OF FERTILIZERS	
	Amount per acre	KIND OF FERTILIZER	Nitrogen	**Available phosphoric acid	Potash	Per ton	Per acre
1	Lbs.		Lbs.	Lbs.	Lbs.		
	200	Cotton seed meal.....	13.58	5.76	3.54	\$30 00	\$3.00
	<i>In 100 lbs. c. s. meal*</i>	6.79	2.88	1.77			
2	240	Acid phosphate.....		38.40		14.00	1.68
		<i>In 100 lbs. acid phos</i>		16.00			
4	200	Kainit.....			24.60	14.00	1.40
		<i>In 100 lbs. kainit</i>			12.30		
5	200	Cotton seed meal.....	13.58	44.16	3.54	21.27	4.68
	240	Acid phosphate.....					
		<i>In 100 lbs. above mixt</i>	3.09	10.04	0.80		
6	200	Cotton seed meal.....	13.58	5.76	28.14	22.00	4.40
	200	Kainit.....					
		<i>In 100 lbs. above mixt</i>	3.39	1.44	7.03		
8	240	Acid phosphate.....				13.99	3.08
	200	Kainit.....					
		<i>In 100 lbs. above mixt</i>		8.73	5.59		
9	240	Cotton seed meal.....	13.58	44.16	28.14	19.00	6.08
	200	Acid phosphate.....					
	200	Kainit.....	2.12	6.90	4.40		
		<i>In 100 lbs. above mixt</i>					
10	200	Cotton seed meal.....	13.58	44.16	15.84	20.13	5.38
	240	Acid phosphate.....					
	100	Kainit.....	2.59	8.18	2.93		
		<i>In 100 lbs. above mixt</i>					
12	240	Acid phosphate.....	14.00	16.00	12.30	***	****
	100	Kainit.....					
	100	Nitrate of soda.....	3.18	8.73	2.80	24.45	5.38
		<i>In 100 lbs. above mixt</i>					

\* Average of many analyses.

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

\*\*\* Only \$22.17 in 1911 and 1912.

\*\*\*\* Only \$4.88 in 1911 and 1912.

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 1.3-14.

WASHINGTON COUNTY, 7 MILES NORTHWEST OF  
CARSON, NEAR LEROY.

J. M. PELHAM, SR—1912.

*Red sandy land, with stiffer red subsoil.*

This upland soil had been many years in cultivation. The three preceding crops consisted of corn. The stand on all plots was good. Too much rain and a storm in September reduced the yield.

There was but little, if any, profit in the use of any of the fertilizers. Nitrogen was slightly more important than the others.

J. M. PELHAM, SR—1913.

The same experiment repeated in 1913 again showed that only nitrogen uniformly increased the yield and that nitrate of soda was more effective and more profitable than cotton seed meal.

*Experiments in Washington County, 1912 and 1913.*

Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	1912 NEAR LEROY			1913 NEAR LEROY		
			Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
1	Lbs. 200	Cotton seed meal	Bus. 25.4	Bus. 4.2	\$ 0.36	Bus. 30.8	Bus. 13.7	\$ 9.33
2	240	Acid phosphate	23.8	2.6	0.40	17.2	0.1	-1.59
3		No fertilizer	21.2			17.1		
4	200	Kainit	22.6	2.0	0.20	15.8	-0.7	-2.03
5	200	C. S. Meal	19.0	-1.0	-5.48	16.2	0.4	-4.32
	240	Acid phosphate						
6	200	C. S. Meal	18.4	-1.0	-5.20	16.1	0.9	-3.59
	200	Kainit						
7		No fertilizer	18.8			14.5		
8	240	Acid phosphate	18.5	0.4	-2.76	12.6	-1.8	-4.70
	200	Kainit						
	200	C. S. Meal	19.2	1.8	-4.64	14.9	0.6	-5.54
9	240	Acid phosphate						
	200	Kainit	19.2	2.5	-3.38	15.8	1.7	-3.85
10	240	Acid phosphate						
	100	Kainit	16.0			14.0		
11		No fertilizer						
	240	Acid phosphate	20.6	4.6	-1.20	23.4	9.4	3.08
12	100	Kainit						
	100	Nitrate of soda						

BALDWIN COUNTY, 1 MILE NORTH OF  
ROBERTSDALE.

J. A. COOPER—1914.

*Reddish sandy loam, with reddish sandy clay subsoil.*

This upland field had been cleared about fifteen years. The preceding crop was corn. The stand was good, except on Plot 6, which had about 87-90 per cent as many stalks as the other plots.

All fertilizers gave such insignificant increases in the yield that every single fertilizer and every combination was used at a financial loss.

*Experiments in Baldwin and Escambia Counties.*

Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	1914 ROBERTSDALE			1914 NOKOMIS		
			Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
1	Lbs. 200	Cotton seed meal	Bus. 15.8	Bus. -0.1	\$-3.09	Bus. 18.8	Bus. 2.9	\$-0.39
2	240	Acid phosphate	16.1	0.2	-1.50	14.5	-1.4	-2.94
3		No fertilizer	15.9			15.9		
4	200	Kainit	16.2	0.2	-1.22	18.1	1.5	-0.05
5	200	C. S. Meal	16.3	0.2	-4.50	18.6	1.2	-3.60
	240	Acid phosphate						
6	200	N. S. Meal	15.8	-0.4	-4.76	20.8	2.7	-1.97
	200	Kainit						
7		No fertilizer	16.2			18.8		
8	240	Acid phosphate	17.3	0.6	-2.54	18.4	-0.6	-3.62
	200	Kainit						
9	200	C. S. Meal	18.7	1.4	-4.82	19.2	0.1	-5.99
	240	Acid phosphate						
10	200	C. S. Meal	20.3	2.5	-3.13	21.4	2.1	-3.49
	240	Acid phosphate						
11	100	Kainit	18.3			19.4		
		No fertilizer						
12	240	Acid phosphate	19.1	0.8	-4.66	26.3	6.9	0.83
	100	Kainit						
	100	Nitrate of soda						

ESCAMBIA COUNTY, 1 MILE EAST OF NOKOMIS.

N. B. RHODES on farm of H. W. CURRIE, Atmore—1914

*Gray sandy soil with red clay subsoil.*

The preceding crop was corn with a few velvet beans. The stand of corn was uniform.

Nitrogen in every combination increased the yield but seldom to a profitable extent.

Nitrate of soda was superior to cotton seed meal. Phosphate and kainit did not increase the yield in this dry year.

ESCAMBIA COUNTY, 1-1/2 MILES NORTH OF  
ATMORE.

J. W. JONES—1911.

*Gray loamy soil, with stiffer yellowish subsoil.*

This upland field had been in cultivation about 8 years. The preceding crop was cotton.

The largest increase was obtained on Plots 5 and 6, both of which contained cotton seed meal in connection with either phosphate or kainit. However, the largest profit from fertilizer, \$2.28 per acre, was obtained on Plot 4, receiving kainit alone.

Nitrogen was more effective than either phosphate or kainit, and kainit was somewhat more effective than phosphate.

The average increase due to cotton seed meal was 5.1 bushels per acre; to kainit 1.6 bushels; with acid phosphate there was an average decrease of 1.3 bushels.

## Experiments in Escambia County.

			1911			1913		
			ATMORE			ATMORE		
Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
1	Lbs. 200	Cotton seed meal	Bus. 30.1	Bus. 4.8	\$ 0.60	Bus. 19.7	Bus. 7.1	\$ 3.39
2	240	Acid phosphate	24.6	-0.7	-2.21	12.6	0.0	-1.68
3		No fertilizer	25.3			12.6		
4	200	Kainit	29.2	4.9	2.28	14.1	0.9	-0.59
5	200	C. S. Meal	30.3	6.9	0.50	14.7	0.9	-3.87
	240	Acid phosphate						
6	200	C. S. Meal	29.3	6.9	0.78	15.2	0.8	-3.68
	200	Kainit						
7		No fertilizer	21.4			15.0		
8	240	Acid phosphate	22.2	-0.3	-3.31	12.7	-2.9	-5.59
	200	Kainit						
9	200	C. S. Meal	29.2	5.7	-1.80	14.5	-1.6	-7.52
	240	Acid phosphate						
10	200	Kainit	26.7	2.1	-3.80	14.6	-2.1	-7.27
	240	Acid phosphate						
11	100	Kainit	25.6			17.2		
		No fertilizer						
12	240	Acid phosphate	31.9	6.3	-0.65	24.8	7.6	1.46
	100	Kainit						
	100	Nitrate of soda						

ESCAMBIA COUNTY, 3 MILES NORTHEAST OF  
ATMORE.

C. A. McNEIL—1913.

*Sandy loam, with yellowish subsoil.*

This upland field had been in cultivation for 9 years. The preceding crop was corn. The stand was uniform.

No fertilizer was profitable, and potash and phosphate under the condition of this season seemed to have reduced the yield.

ESCAMBIA COUNTY, 2 MILES EAST OF CANOE.

F. J. GERMAN—1912.

*Red sandy loam, with stiffer red subsoil.*

Grass worms did some damage, but this was apparently uniform, except on Plot 12, where it was most severe.

The largest profit was afforded by Plot 10, which was fertilized at the following rate per acre:

200 pounds cotton seed meal.

240 pounds acid phosphate.

100 pounds kainit.

On this plot the increase was 9.9 bushels per acre, and apparently due to fertilizer.

*Experiments in Escambia and Conecuh Counties.*

			1912 CANOE			1912 EVERGREEN		
Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	Yield corn	Increase over	Profit from	Yield corn	Increase over	Profit from
			per acre	unfertilized plot	fertilizer	per acre	unfertilized plot	fertilizer
	Lbs.		Bus.	Bus.	\$	Bus.	Bus.	\$
1	200	Cotton seed meal	8.2	2.7	\$-0.84	21.1	-1.7	\$-4.36
2	240	Acid phosphate	7.0	1.5	-0.48	18.0	-4.8	-5.52
3		No fertilizer	5.5			22.8		
4	200	Kainit	5.7	0.5	-1.00	19.0	-4.0	-4.60
5	200	C. S. Meal	8.9	4.0	-1.48	22.0	-1.3	-5.72
	240	Acid phosphate						
6	200	C. S. Meal	6.3	1.7	-3.04	19.5	-4.0	-7.60
	200	Kainit						
7		No fertilizer	4.3			23.7		
8	240	Acid phosphate	8.2	3.5	-0.28	23.2	0.9	-2.36
	200	Kainit						
	200	C. S. Meal	15.3	10.2	2.08	18.3	-2.6	-8.16
9	240	Acid phosphate						
	200	Kainit						
10	200	C. S. Meal	15.4	9.9	2.54	20.0	0.6	-4.90
	240	Acid phosphate						
	100	Kainit						
11		No fertilizer	5.9			18.0		
12	240	Acid phosphate				24.8	6.8	0.56
	100	Kainit						
	100	Nitrate of soda						

CONECUH COUNTY,  $\frac{1}{2}$  MILE WEST OF  
EVERGREEN.

J. D. McCrory & Son—1912.

*Grey loam soil, with stiffer red subsoil.*

Every fertilizer and every combination of fertilizers, except the one containing nitrate of soda (on Plot 12) was perfectly ineffective, and used at a financial loss. Mr. L. T. Rhodes, who supervised this experiment, attributes the apparently harmful effect of fertilizers to their having hastened the growth of the plant, thus causing them to suffer more from drought than did the unfertilized plants, which "waited for the rains."

## GENEVA COUNTY, ON HIGH SCHOOL CAMPUS.

GENEVA COUNTY HIGH SCHOOL—1913.

*Gray soil, with light colored stiffer subsoil.*

This land had been in cultivation only 4 years. The preceding crop was cotton. The stand was fairly uniform.

The largest increase in yield was 12 bushels per acre on Plot 5, which was fertilized with 200 pounds of cotton seed meal and 240 pounds acid phosphate per acre. The profit due to fertilizer on this plot was \$5.12 per acre.

As shown in the table of increase on page 182 cotton seed meal in every combination increased the yield, its average increase being 5.1 bushels per acre. Acid phosphate usually increased the yields, its average increase being 2.8 bushels. The average decrease from using 200 pounds kainit was 3.2 bushels per acre.

Cotton seed meal was superior to nitrate of soda.

*Experiments in Geneva and Henry Counties.*

			1913 HARTFORD			1912 HEADLAND		
Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Bus.	Bus.	\$	Bus.	Bus.	\$
1	200	Cotton seed meal	28.8	5.0	1.50	22.6	4.4	0.52
2	240	Acid phosphate	29.7	5.9	3.63	18.2	0.0	-1.68
3		No fertilizer	23.8			18.2		
4	200	Kainit	24.4	-0.6	-1.94	19.9	1.3	-0.36
5	200	C. S. Meal	38.1	12.0	5.12	20.8	1.7	-3.32
	240	Acid phosphate						
6	200	C. S. Meal	33.9	6.6	1.54	22.3	2.8	-2.16
	200	Kainit						
7		No fertilizer	28.4			19.9		
8	240	Acid phosphate	29.3	1.1	-2.09	20.9	0.6	-2.60
	200	Kainit						
9	200	C. S. Meal	31.2	3.2	-3.20	23.3	2.5	-4.08
	240	Acid phosphate						
10	200	Kainit	32.0	4.2	-1.60	24.3	3.1	-2.90
	240	Acid phosphate						
11	100	Kainit	27.6			21.6		
		No fertilizer						
12	240	Acid phosphate	29.7	2.1	-3.49	26.4	4.8	-1.04
	100	Kainit						
	100	Nitrate of soda						

HENRY COUNTY, 6 MILES NORTHWEST OF  
HEADLAND.

R. W. WARD—1912.

*Sandy soil with reddish stiffer subsoil.*

This field had been in cultivation about 20 years. The two preceding crops were cotton.

The largest increase, 4.8 bushels per acre, was obtained on Plot 12, which received a complete fertilizer containing nitrate of soda.

Nitrogen was the only fertilizer that notably increased the yield and even this not to a profitable extent. Phosphate and potash were not effective under corn on this soil in 1912.

GENEVA COUNTY, 2 MILES NORTH OF SLOCOMB.

J. G. LEWIS—1911.

*Gray sandy soil, with yellowish subsoil.*

This upland field had been cleared for seven years. The preceding crop was corn.

By mistake all fertilizers were applied at a rate 20 per cent greater than required by directions.

The largest increase, 11.1 bushels per acre, was obtained on Plot 12, which received the following fertilizer per acre:

300 pounds acid phosphate.

125 pounds kainit.

125 pounds nitrate of soda.

This afforded a profit, due to fertilizer, of only \$1.60 per acre.

The second largest increase, 8.9 bushels per acre, was obtained on Plot 5, which was fertilized with:

250 pounds cotton seed meal per acre.

300 pounds acid phosphate per acre.

Nitrogen was the most important fertilizer constituent.

The average increase from 250 pounds cotton seed meal was 3.1 bushels; from 300 pounds acid phosphate the average increase was 2.5 bushels per acre; 250 pounds of kainit, failed, on the average, to increase the yield.

Nitrogen in the form of nitrate of soda was slightly more effective than in the form of cotton seed meal.



*Experiments in Geneva and Henry Counties.*

Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	1911 SLOCOMB			1911 HEADLAND		
			Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Bus.	Bus.	\$	Bus.	Bus.	\$
1	250	Cotton seed meal	21.2	4.6	-\$0.30	31.7	0.9	-\$3.07
2	300	Acid phosphate	21.4	4.8	1.50	31.6	0.8	-1.50
3		No fertilizer	16.6			30.8		
4	250	Kainit	19.2	2.7	0.28	35.7	5.4	2.30
5	250	C. S. Meal	25.3	8.9	0.83	38.3	8.6	0.60
	300	Acid phosphate						
6	250	C. S. Meal	22.0	5.8	-1.15	32.4	3.2	-3.10
	250	Kainit						
7		No fertilizer	16.1			28.6		
8	300	Acid phosphate	20.5	4.4	-0.55	30.8	2.0	-2.35
	250	Kainit						
9	250	C. S. Meal	21.2	5.1	-3.77	35.7	6.8	-2.50
	300	Acid phosphate						
10	250	C. S. Meal	22.5	6.4	-1.93	32.4	3.3	-4.25
	300	Acid phosphate						
11	100	Kainit	16.1			29.2		
	300	No fertilizer						
12	300	Acid phosphate	27.2	11.1	1.60	32.4	3.2	-4.33
	125	Kainit						
	125	Nitrate of soda						

**HENRY COUNTY, 1-1/4 MILES FROM HEADLAND.**

**J. T. KNOWLES—1911.**

*Sandy loam, with yellowish subsoil.*

This field had been in cultivation ten or fifteen years.

By mistake the fertilizers were used at a rate 20 per cent heavier than required by the plan.

The largest increase, 8.6 bushels per acre, was made on Plot 5, which was fertilized with the following:

250 pounds cotton seed meal per acre.

300 pounds acid phosphate per acre.

Each of the fertilizer constituents seems to have increased the yield slightly, but at this heavy rate of application the increase was not sufficient to afford a profit.

Nitrate of soda and cotton seed meal were of practically the same value, when both were used in complete fertilizers.

CRENSHAW COUNTY,  $\frac{3}{4}$  MILE NORTH OF  
BRANTLEY.

J. W. ELLIS—1912.

*Dark gray sandy loam, with stiffer yellowish subsoil.*

The stand was good on all plots.

Omitting Plot 1, which was considerably richer than the other plots, the largest profit, \$5.06 per acre, and the largest increase, 12.8 bushels, were made on Plot 5, fertilized with the following:

200 pounds cotton seed meal per acre.

240 pounds acid phosphate per acre.

Apparently nitrogen was the most important fertilizer constituent and this was more effective in the form of nitrate of soda than of cotton seed meal. Phosphate was second in importance, and potash was not needed.

*Experiments in Crenshaw County.*

Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	1912 BRANTLEY			1914 LUVERNE		
			Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
1	200	Cotton seed meal	32.4	16.6	\$10.28	23.1	2.7	\$-0.57
2	240	Acid phosphate	21.4	5.6	2.80	20.0	-0.4	-2.04
3		No fertilizer	15.8			20.4		
4	200	Kainit	12.5	-3.8	-4.44	18.7	-1.3	-2.57
5	200	C. S. Meal	29.5	12.8	5.56	18.8	-0.8	-5.40
	240	Acid phosphate						
6	200	C. S. Meal	22.8	5.6	0.08	21.7	2.5	-2.15
	200	Kainit						
7		No fertilizer	17.6			18.8		
8	240	Acid phosphate	18.4	1.5	-1.88	17.9	-0.2	-3.36
	200	Kainit						
9	200	C. S. Meal	21.4	5.2	-1.92	18.9	1.6	-4.64
	240	Acid phosphate						
10	200	Kainit	19.9	4.5	-1.78	16.9	0.3	-5.11
	200	C. S. Meal						
11	100	Kainit	14.7			15.8		
12	240	Acid phosphate	22.1	7.4	1.04	22.9	7.1	1.01
	100	Nitrate of soda						

## CRENSHAW COUNTY, 2 MILES WEST OF LUVERNE

G. W. TURNER—1914.

*Grey sandy loam, with yellowish subsoil.*

This old land had been long in cultivation.

In this unusually dry year most combinations of fertilizers failed to increase the yield to any notable extent, however, nitrogen usually increased the yield. The largest increase, 7.1 bushels, was obtained on Plot 12, fertilized with:

240 pounds acid phosphate per acre.

100 pounds kainit per acre.

100 pounds nitrate of soda per acre.

Nitrate of soda applied late was more effective by 6.8 bushels per acre than was cotton seed meal applied in a complete fertilizer at time of planting.

COFFEE COUNTY, 8 MILES SOUTH OF  
ENTERPRISE.

J. W. HARRY—1911.

*Red loam soil, with red subsoil.*

This upland soil had been in cultivation about 30 years. The preceding crop was corn.

The largest profit, \$4.00 per acre, was obtained on Plot 10, which was fertilized as follows:

200 pounds cotton seed meal per acre.

240 pounds acid phosphate per acre.

100 pounds kainit per acre.

This was closely followed by Plot 12, which received fertilizer of about the same composition and cost, but in which the nitrogen was supplied in the form of nitrat of soda.

All complete fertilizers Plots 10, 12 and 9 largely increased the yields; the application of any two of the fertilizers considerably increased the yield; but when applied alone there was practically no increase from either meal, phosphate or kainit.

One hundred pounds of kainit per acre was more effective and profitable than 200 pounds, and cotton seed meal was slightly superior to nitrate of soda.

*Experiments in Coffee County.*

Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	1911 ENTERPRISE			1911 ELBA		
			Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
1	200	Cotton seed meal	11.1	-2.6	\$-4.95	30.1	1.3	\$-1.83
2	240	Acid phosphate	13.8	0.1	-1.60	26.3	-2.5	-3.93
3		No fertilizer	13.7			28.8		
4	200	Kainit	15.1	0.7	-0.87	21.1	-8.5	-9.05
5	200	C. S. Meal	25.5	10.3	3.05	26.3	-4.1	-8.37
	240	Acid phosphate						
6	200	C. S. Meal	21.6	5.7	-0.12	27.8	-3.4	-7.46
	200	Kainit						
7		No fertilizer	16.6			32.0		
8	240	Acid phosphate	24.0	7.9	2.85	26.5	-3.7	-6.41
	200	Kainit						
9	200	C. S. Meal	25.7	10.0	1.42	28.8	0.5	-5.63
	240	Acid phosphate						
	200	Kainit						
10	240	Acid phosphate	27.7	12.5	4.00	26.5	0.0	-5.38
	100	Kainit						
11		No fertilizer	14.7			24.6		
12	240	Acid phosphate	26.1	11.4	3.67			
	100	Kainit						
	100	Nitrate of soda						

**COFFEE COUNTY, 2-½ MILES EAST OF ELBA.**

T. P. WINDHAM—1913.

*Gray sandy loam, with stiffer red subsoil.*

This land had been in cultivation 15 years. The preceding crop was cotton. The stand was uniform.

No fertilizer or combination of fertilizers was profitable or notably effective under the conditions of the season.

**CHOCTAW COUNTY, 5 MILES EAST OF CHOCTAW CITY, NEAR NAHEOLA.**

W. R. CHRISTOPHER—1911.

*Black bottom land with yellowish subsoil.*

This field, which the owner describes as a typical "Thirsty River Land," had been cleared of its original swamp timber for about 14 years but for the three

years preceding the experiment it was in grass and weeds. The stand was identical, Plots 1 to 5 inclusive, and about 22 per cent thicker, Plots 6 to 12.

No fertilizer, and no combinations of fertilizers sufficiently increased the yield to be profitable.

On these same plots Mr. Christopher conducted a similar experiment in 1912, which proved inconclusive, probably due to attacks by grass worms and to very late planting (June 22). See page 179.

*Experiments in Choctaw and Hale Counties.*

Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	1911 NAHEOLA			1914 GREENSBORO		
			Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
1	Lbs 200	Cotton seed meal	Bus. 11.1	Bus. -5.7	\$-7.00	Bus. 16.4	Bus. 1.7	\$-1.47
2	240	Acid phosphate	14.3	-2.5	-3.56	14.7	0.0	-1.68
3		No fertilizer	15.8			14.7		
4	200	Kainit	11.8	-5.0	-5.15	16.0	1.1	-0.41
5	200	C. S. Meal	16.8	0.0	-4.68	16.8	1.7	-3.15
	240	Acid phosphate						
6	200	C. S. Meal	15.5	-1.3	-5.38	15.6	0.4	-4.04
	200	Kainit						
7		No fertilizer	16.8			15.4		
8	240	Acid phosphate	18.4	2.5	-1.20	10.7	-4.0	-6.68
	200	Kainit						
9	200	C. S. Meal	16.8	1.8	-4.73	10.7	-3.3	-9.05
	240	Acid phosphate						
10	200	Kainit	16.8	2.7	-3.35	13.3	0.0	-5.38
	100	Kainit						
11		No fertilizer	13.2			12.6		
12	240	Acid phosphate	16.8	3.6	-2.18	13.9	1.3	-4.21
	100	Kainit						
	100	Nitrate of soda						

HALE COUNTY, 1-1/2 MILES SOUTHEAST OF GREENSBORO.

P. A. TUTWILER, JR.—1914.

*Gray sandy soil, with red clay subsoil.*

This land had been in cotton the two preceding years, each plot being fertilized as for corn this year.

All fertilizers were used at a financial loss. Nitro-

gen slightly increased the yield, while phosphate and potash afforded no increase.

This experiment with corn was made on the same plots on which exactly similar experiments with cotton were conducted both in 1912 and 1913. (See Alabama Station Bulletin No. 169, p. 20; and Bulletin No. 174, p. 161.) It is interesting to note that with cotton as well as with corn, the principal need of this soil was for nitrogen; that cotton on these plots responded moderately to potash; while corn was not helped by potash; and that phosphate on this soil one year afforded a slight increase, and another year no increase in the yield of cotton.

MARENGO COUNTY, 2 MILES SOUTH OF  
DEMOPOLIS

G. W. ALLEN—1914.

*Dark prairie soil.*

The land on which this experiment was conducted had been planted to corn and cotton for many years. The stand was good. Dry weather the latter part of June damaged the experiment slightly.

All fertilizers were used at a financial loss, except where cotton seed meal was applied alone. As shown in the table of increases cotton seed meal in every combination increased the yield of corn, the average increase being 3.9 bushels per acre; while practically all combinations the apparent effect of phosphate and kainit was slightly to decrease the yield.

## Experiments in Marengo and Perry Counties.

			1914 DEMOPOLIS			1914 HAMBURG		
Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Bus.	Bus.	\$	Bus.	Bus.	\$
1	200	Cotton seed meal	35.7	6.6	\$ 2.94	31.6	8.4	\$ 4.56
2	240	Acid phosphate	27.0	-2.1	-3.57	29.5	6.3	3.99
3		No fertilizer	29.1			23.2		
4	200	Kainit	24.9	-3.2	-4.28	30.5	6.8	4.72
5	200	C. S. Meal	27.3	0.3	-4.41	31.6	7.3	1.89
	240	Acid phosphate						
6	200	C. S. Meal	26.7	0.7	-3.77	30.3	5.5	0.55
	200	Kainit						
7		No fertilizer	24.9			25.3		
8	240	Acid phosphate	23.8	-2.7	-5.51	30.5	5.3	1.69
	200	Kainit						
	200	C. S. Meal						
9	240	Acid phosphate	27.9	-0.1	-6.17	30.0	5.0	-1.58
	200	Kainit						
	200	C. S. Meal						
10	240	Acid phosphate	29.7	0.1	-5.29	31.6	6.7	0.65
	100	Kainit						
11		No fertilizer	31.1			24.7		
12	240	Acid phosphate	30.3	-0.8	-6.10	33.7	9.0	2.72
	100	Kainit						
	100	Nitrate of soda						

## PERRY COUNTY, 2 MILES EAST OF HAMBURG.

S. A. CRAWFORD—1914.

*Grayish prairie soil.*

This prairie land had been long cleared, seventy five or more years. The preceding crop was cotton. A good stand was obtained on all plots.

The largest increase 9.0 bushels per acre was obtained on Plot 12, fertilized as follows:

240 pounds acid phosphate per acre.

100 pounds kainit per acre.

100 pounds nitrate of soda per acre.

However, the largest profits were obtained where the fertilizer constituents were applied singly.

In general, corn on this stiff lime land was in this dry year comparatively unresponsive to commercial fertilizers.

LOWNDES COUNTY, 1 MILE SOUTHWEST OF  
LETOHATCHIE.

J. B. MITCHELL, JR.—1914.

*Black prairie bottom land.*

The land on which this experiment was conducted had been in cultivation for many years. The preceding crop was cotton, preceded by corn.

Although this typical prairie bottom was rich enough to produce, in an unfavorable year, 28 to 33 bushels of corn without fertilizers, yet it responded profitably to certain fertilizers.

The largest increases, 17.5 and 17.2 bushels per acre were obtained respectively on Plots 9 and 10, both of which received a complete fertilizer. The largest net profit due to fertilizer, \$11.40 per acre, was obtained on the plot fertilized with only cotton seed meal. In point of net profit this was closely followed by Plot 10, fertilized as follows:

200 pounds cotton seed meal per acre.

240 pounds acid phosphate per acre.

100 pounds kainit per acre.

As may be seen in the table of increases on page 182 cotton seed meal in every combination notable increased the yield; the average increase attributable to 200 pounds cotton seed meal was 8.5 bushels per acre; to 240 pounds acid phosphate 5.8 bushels; while kainit was apparently of slight advantage in a complete fertilizer, yet in most combinations it failed to increase the yield. This is a character of land for which the popular fertilizer for cotton is kainit, used chiefly for its effect in minimizing injury from cotton rust.



*Experiments in Lowndes and Elmore Counties.*

			1914 LETOHATCHIE			1913 ECLECTIC		
Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Bus.	Bus.	\$	Bus.	Bus.	\$
1	200	Cotton seed meal	44.0	16.0	\$11.40	16.4	5.2	\$ 1.68
2	240	Acid phosphate	38.0	10.0	7.32	12.6	1.4	-0.42
3		No fertilizer	28.0			11.2		
4	200	Kainit	32.0	3.0	1.30	11.8	1.0	-0.50
5	200	C. S. Meal	44.0	14.0	7.92	15.8	5.4	0.18
	240	Acid phosphate						
6	200	C. S. Meal	36.0	5.0	0.10	21.7	11.8	6.22
	200	Kainit						
7		No fertilizer	32.0			9.5		
8	240	Acid phosphate	38.0	5.7	2.05	9.9	-0.3	-3.35
	200	Kainit						
9	200	C. S. Meal	50.0	17.5	9.67	15.8	4.9	-1.67
	240	Acid phosphate						
10	200	Kainit	50.0	17.2	10.10	14.7	3.2	-2.50
	240	Acid phosphate						
11	100	Kainit	33.0			12.2		
		No fertilizer						
12	200	Acid phosphate				25.9	13.7	6.95
	100	Kainit						
	100	Nitrate of soda						

**ELMORE COUNTY,  $\frac{3}{4}$  MILE OF ECLECTIC.**

**W. A. PATTERSON—1913.**

*Grey gravelly soil, with stiffer yellowish subsoil.*

This upland soil had been many years in cultivation. The preceding crop was peanuts.

In every combination nitrogen notably increased the yield, the average increase due to 200 pounds cotton seed meal being 6.3 bushels of corn per acre. Phosphate and kainit did not on the average increase the yield sufficiently to afford a profit.

The largest profit from fertilizers per acre was obtained on Plot 12, which was fertilized as follows:

240 pounds acid phosphate per acre.

100 pounds kainit per acre.

100 pounds nitrate of soda per acre.

Plot 12 also afforded the largest increase in yield, 13.7 bushels per acre; this was closely followed by Plot 6, which gave an increase of 11.8 bushels per acre from the use of 200 pounds cotton seed meal and 200 pounds

of kainit per acre.

Nitrate of soda was much more effective and profitable than cotton seed meal.

LEE COUNTY, 1-1/2 MILES EAST OF NOTASULGA.

J. W. KIMBROUGH—1913.

*Gray sandy soil, with reddish subsoil.*

This upland had been incultivation as long as 50 years. The three preceding crops were cotton. The stand was fairly regular.

The largest profit from fertilizers, \$3.71 per acre, and the largest increase, 10.1 bushels per acre, was obtained on Plot 12 fertilized as follows:

240 pounds acid phosphate per acre.

100 pounds kainit per acre.

100 pounds nitrate of soda per acre.

Nitrogen was by far the most important fertilizer constituent, and was more profitable in the form of nitrate of soda than of cotton seed meal.

*Experiments in Lee and Coffee Counties.*

			1913 NOTASULGA.			1914 ENTERPRISE		
Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
	Lbs.		Bus.	Bus.	\$	Lbs.	Lbs.	\$
1	200	Cotton seed meal	26.6	5.8	2.22	18.9	-1.1	-3.99
2	240	Acid phosphate	23.5	5.7	0.75	18.3	-1.7	-3.21
3		No fertilizer	20.8			20.0		
4	200	Kainit	23.1	2.6	0.94	20.8	0.8	-0.68
5	200	N. S. Meal	21.5	1.3	-3.51	19.4	-0.7	-5.31
	240	Acid phosphate						
6	200	C. S. Meal	24.4	4.6	-0.26	18.3	-1.8	-6.02
	200	Kainit						
7		No fertilizer	19.5			20.2		
8	240	Acid phosphate	14.7	-3.9	-6.59	20.6	0.5	-2.63
	200	Kainit						
9	200	C. S. Meal	18.8	1.2	-5.00	18.5	-1.4	-7.34
	240	Acid phosphate						
10	200	Kainit	16.4	-0.3	-5.65	18.1	-1.7	-6.91
	240	Acid phosphate						
11	100	Kainit	15.7			19.6		
		No fertilizer						
12	240	Acid phosphate	25.8	10.1	-3.71	20.4	0.8	-4.66
	100	Kainit						
	100	Nitrate of soda						

COFFEE COUNTY, 3 MILES NORTH OF  
ENTERPRISE.

J. W. MEREDITH—1914.

*Gray sandy loam with stiffer yellow subsoil.*

On this upland field most fertilizers under the conditions of this season seemed to have reduced the yield, and those causing an increase failed to be profitable.

*Experiment in Marengo County.*

LINDEN 1914

Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	Yield corn per acre	Increase over unfertilized plot	Profit from fertilizer
1	400	Cotton seed meal .....	32.1	12.4	\$-5.16
2	480	Acid phosphate .....	19.3	-0.4	-3.72
3		No fertilizer .....	19.7		
4	400	Kainit .....	17.1	-2.7	-5.23
5	400	C. S. Meal .....	34.1	14.2	-3.42
	480	Acid phosphate .....			
6	400	C. S. Meal .....	28.6	8.6	-1.06
	400	Kainit .....			
7		No fertilizer .....	20.1		
8	480	Acid phosphate .....	17.8	-2.3	-8.23
	400	Kainit .....			
9	400	C. S. Meal .....	32.7	12.7	-0.73
	480	Acid phosphate .....			
10	400	Kainit .....	30.6	10.6	-1.22
	480	Acid phosphate .....			
11	200	Kainit .....	19.9		
		No fertilizer .....			
12	480	Acid phosphate .....	31.8	11.9	-0.05
	200	Kainit .....			
	200	Nitrate of soda .....			

MARENGO COUNTY, 2 MILES SOUTHWEST OF  
LINDEN.

J. T. SCOGIN—1914.

*Typical black "post-oak-soil" with stiff yellowish subsoil.*

The original growth was oak, hickory and short leaf pine. After being out of cultivation for a number of years this field was cultivated the past six years chiefly in cotton.

By mistake, twice as much of each fertilizer was applied as directions required. It is probably partly on

this account that while most combinations of fertilizers increased the yield to a notable extent still there were only two plots which afforded a profit, namely: Plot 1, which received cotton seed meal and Plot 5, which received a mixture of meal and acid phosphate. These profits due to fertilizers were respectively, \$5.16 and \$3.42 per acre.

The largest increase, 14.2 bushels, was on Plot 5, fertilized with 400 pounds cotton seed meal per acre and 480 pounds of acid phosphate.

As may be seen from the table of increases on page 182 the average increase due to 400 pounds of cotton seed meal was 13.3 bushels of corn per acre; to 480 pounds acid phosphate only 1.5 bushels; on the kainit plots there was uniformly a decrease in yield, the average loss from 400 pounds of kainit being 2.5 bushels.

In HALE COUNTY, 2- $\frac{1}{2}$  miles north of Newbern, an experiment conducted by B. L. Allen in 1913 proved inconclusive because of the extreme damage done by dry weather. (See page 180).

An experiment conducted by S. A. Crawford, 2 miles East of Hamburg, PERRY COUNTY, in 1913, proved inconclusive because of lack of uniformity in the land as shown by the check plots. (See page 180).

In ELMORE COUNTY, Mitchell Pittman conducted an experiment in 1912, 4 miles North of Tallassee. It proved inconclusive because of a poor stand of corn. (See page 180).

In BARBOUR COUNTY, an experiment conducted by L. B. Green in 1914, 2- $\frac{1}{2}$  miles North of Eufaula, proved inconclusive because of damage from drouth. (See page 180).

An inconclusive experiment was conducted by W. A. Slay, in 1914, 1- $\frac{3}{4}$  miles Northwest of Dothian in HOUSTON COUNTY, the results of which suggest that, in this dry year, nitrogen was the only fertilizer constituent which increased the yields and that its increase was not sufficient to afford a profit. (See page 180).

In MOBILE COUNTY an experiment was conducted near Irvington by the Irvington Land Company, (H. B. Michael, Mgr.) in 1913. It proved inconclusive because of lack of uniformity of soil. (See page 181).

In BALDWIN COUNTY, an experiment conducted in 1914, by Mrs. F. J. Arnold, 3- $\frac{1}{2}$  miles East of Bay Min-

ette, proved inconclusive because the soil was not uniform. (See page 181).

An experiment was conducted by T. Lee Porter, 6 miles Northeast of Carson near Leroy in WASHINGTON COUNTY, in 1911. It proved inconclusive because the soil was not uniform and the damage done by a wind storm in August. (See page 181).

In CHOCTAW COUNTY, an experiment conducted by W. R. Christopher, near Naheola, in 1912 proved inconclusive. (See page 181).

In CHOCTAW COUNTY, J. D. Mason, one mile north of Silas, conducted an experiment in 1913. The results were inconclusive because of want of uniformity in the yields of the unfertilized plots. (See page 181).

*Inconclusive Experiments in Hale, Perry, Elmore, Barbour and Houston Counties.*

			1913		1913		1912		1914		1914	
			B. L. Allen NEWBERN		S. A. Crawford HAMBURG		Mitchell Pittman TALLASSEE		L. B. Green EUFULA		W. A. Slay DOTHAN	
Plot No.	Amt. fertilizer per acre	KIND OF FERTILIZER	Yield corn	Increase over	Yield corn	Increase over	Yield corn	Increase over	Yield corn	Increase over	Yield corn	Increase over
			per acre	unfertilized plot	per acre	unfertilized plot	per acre	unfertilized plot	per acre	unfertilized plot	per acre	unfertilized plot
			Bus.	Bus.	Bus.	Bus.	Bus.	Bus.	Bus.	Bus.	Bus.	Bus.
1	200	Cotton seed meal	4.3	1.0	50.3	4.3	10.2	2.8	7.8	4.6	10.3	2.2
2	240	Acid phosphate	3.1	-0.2	45.4	-0.6	10.0	2.6	5.7	2.5	8.0	-0.1
3		No fertilizer	3.3		46.0		7.4		3.2		8.1	
4	200	Kainit	3.3	0.1	39.0	-0.7	6.5	-0.3	3.6	0.8	7.9	-1.0
5	200	C. S. Meal	3.0	-0.2	31.6	-1.8	11.1	5.0	4.0	1.6	11.6	1.8
	240	Acid phosphate										
6	200	C. S. Meal	3.5	0.4	27.2	0.2	9.2	3.7	3.9	2.0	12.6	2.0
	200	Kainit										
7		No fertilizer	3.0		20.7		4.8		1.5		11.4	
8	240	Acid phosphate	3.0	0.2	19.7	2.2	3.6	-0.7	3.1	1.3	9.1	-3.3
	200	Kainit										
9	200	C. S. Meal	2.3	-0.4	14.3	0.1	6.9	3.0	5.2	3.1	14.3	1.0
	240	Acid phosphate										
	200	Kainit	3.0	0.5	9.1	-1.9	5.6	2.2	5.8	3.5	15.8	1.5
10	240	Acid phosphate										
	100	Kainit	2.3		7.7		2.9		2.6		15.2	
11		No fertilizer										
12	240	Acid phosphate	3.0	0.7	14.3	6.6	9.1	6.2	8.1	5.5	25.7	10.5
	100	Kainit										
	100	Nitrate of soda										



*Increase in bushels of corn per acre attributable to 200 pounds cotton seed meal, 240 pounds acid phosphate and 200 pounds kainit per acre, respectively. Conclusive experiments.*

LOCALITY	YEAR	Increase by adding cotton seed meal					Increase by adding acid phosphate					Increase by adding kainit				
		To unfertilized plot	To phosphate plot	To kainit plot	To phos. and kainit plot	Av. increase due to cotton seed meal	To unfertilized plot	To cotton seed meal plot	To kainit plot	To meal and kainit plot	Av. increase due to phosphate	To unfertilized plot	To cotton seed meal plot	To phosphate plot	To meal and phosphate plot	Av. increase due to kainit
Leroy-Pelham	1912	4.2	-3.6	-3.0	1.4	-0.3	2.6	-5.2	-1.6	2.8	-0.4	2.0	-5.2	-2.2	2.8	-0.7
Leroy-Pelham	1913	13.7	0.3	1.6	2.4	5.0	0.1	-13.3	-1.1	-0.3	-3.7	-0.7	-12.8	-1.7	0.2	-3.8
Robertsdale-Cooper	1914	-0.1	0.0	-0.6	0.8	0.0	0.2	0.3	0.4	1.8	0.7	0.2	-0.3	0.4	1.2	0.4
Nokomis-Rhodes	1914	2.9	2.6	1.2	0.7	1.9	-1.4	-1.7	-2.1	-2.6	-2.0	1.5	-0.2	0.8	-1.1	0.3
Atmore-Jones	1911	4.8	7.6	2.0	6.0	5.1	-0.7	2.1	-5.2	-1.2	-1.3	4.9	2.1	0.4	-1.2	1.6
Atmore-McNeil	1913	7.1	0.9	-0.1	1.3	2.3	0.0	-6.2	-3.8	-2.4	-3.1	0.9	-6.3	-2.9	-2.5	-2.7
Canoe-German	1912	2.7	2.5	1.2	6.7	3.3	1.5	1.3	3.0	8.5	3.6	0.5	-1.0	2.0	6.2	1.9
Evergreen-McCrory	1912	-1.7	-3.5	0.0	-3.5	-2.2	-4.8	0.4	4.9	1.4	0.5	-4.0	-2.3	5.7	-1.3	-0.5
Geneva-G. C. H. S.	1913	5.0	6.1	7.2	2.1	5.1	5.9	7.0	1.7	-3.4	2.8	-0.6	1.6	-4.8	-8.8	-3.2
Headland-Ward	1912	4.4	1.7	1.5	1.9	2.4	0.0	-2.7	-0.7	-0.3	-0.9	1.3	-1.6	0.6	0.8	0.4
Slocomb-Lewis	1911	4.6	4.1	3.1	0.7	3.1	4.8	4.3	1.7	-0.7	2.5	2.7	1.2	-0.4	-3.8	-0.1
Headland-Knowles	1911	0.9	7.8	-2.2	4.8	2.8	0.8	7.7	-3.4	3.6	2.2	5.4	2.3	1.2	-1.8	1.8
Brantley-Ellis	1912	16.6	7.2	9.4	3.7	9.2	5.6	-3.8	5.3	-0.4	1.7	-3.8	-11.0	-4.1	-7.6	-6.6
Luverne-Turner	1914	2.7	-0.4	5.8	2.8	2.2	-0.4	-3.5	1.1	-0.9	-0.9	-1.3	-0.2	0.2	2.4	0.3
Enterprise-Harry	1911	-2.6	10.2	5.0	2.1	3.7	0.1	12.9	7.2	4.3	6.1	0.7	8.3	7.8	-0.3	4.1
Elba-Windham	1913	1.3	-1.6	5.1	4.2	2.3	-2.5	-5.4	4.8	3.9	0.2	-8.5	-4.7	-1.2	4.6	-2.5
Naheola-Christopher	1911	-5.7	2.5	3.7	-0.7	-0.1	-2.5	5.7	6.5	3.1	3.2	-5.0	4.4	5.0	1.8	1.6
Greensboro-Tutwiler	1914	1.7	1.7	-0.7	0.7	0.9	0.0	0.0	-5.1	-3.7	-2.2	1.1	-1.3	-4.0	-5.0	-2.3
Demopolis-Allen	1914	6.6	2.4	3.9	2.6	3.9	-2.1	-6.3	0.5	-0.8	-2.2	-3.2	-5.5	-0.6	-0.4	-2.5
Hamburg-Crawford	1914	8.4	1.0	-1.3	-0.3	2.0	6.3	-1.1	-1.5	-0.5	0.8	6.8	-2.9	-1.0	-2.3	0.2
Letohatchie-Mitchell	1914	16.0	4.0	2.0	11.8	8.5	10.0	-2.0	2.7	12.5	5.8	3.0	-11.0	-4.3	3.5	-2.2
Eclectic-Patterson	1913	5.2	4.0	10.8	5.2	6.3	1.4	0.2	-1.3	-6.9	-1.4	1.0	6.6	-1.7	-0.5	1.4
Notasulga-Kimbrough	1913	5.8	-1.4	2.0	5.1	2.9	2.7	-4.5	-6.5	-3.4	-2.9	2.6	-1.2	-6.6	-0.1	-1.3
Linden-Scogin	1914	12.4	14.6	11.3	15.0	13.3	-0.4	1.8	0.4	4.1	1.5	-2.7	-3.8	-1.9	-1.5	-2.5
Enterprise-Meredith	1914	-1.1	1.0	-2.6	-1.9	-1.2	-1.7	0.4	-0.3	0.4	-0.3	0.8	-0.7	2.2	-0.7	0.4