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Local Fertilizer Experiments With Cotton in South Alabama in 1911

BY

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Opelika, Ala.

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LOCAL FERTILIZER EXPERIMENTS WITH COTTON IN SOUTH ALABAMA IN 1911

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 southern half of Alabama.

The results recorded in this bulletin were obtained in fertilizer experiments conducted with 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 southern half of the State. For convenience the counties grouped together in this bulletin are those lying wholly or partly south of the Central Prairie or Lime Region.

The results of fertilizer experiments made in the counties lying wholly north of the Central Prairie Region will appear in a later bulletin, which will be issued within a few weeks after this one.

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 |
|-----------|-----------------|-----------------|------|
| Barbour | Louisville | J. A. Richards | 289 |
| Bullock | Inverness | R. F. Hooks | 289 |
| Bullock | Union Springs | E. H. Cope | 289 |
| Butler | McKenzie | J. C. Arant | 266 |
| Coffee | Enterprise | J. W. Harry | 272 |
| Choctaw | Pushmataha | D. O. Phillips | 281 |
| Clarke | Bashi | T. M. Pugh | 280 |
| Clarke | Grove Hill | J. W. Calhoun | 288 |
| Conecuh | Belleville | B. D. Arant | 284 |
| Covington | Opp | W. A. Maloy | 295 |
| Covington | Andalusia | W. E. Bagley | 295 |
| Crenshaw | Brantley | J. W. Ellis | 294 |
| Crenshaw | Luverne | F. L. Hawkins | 289 |
| Dale | Midland City | T. W. Barrineau | 292 |
| Dale | Ozark | J. W. Byrd | 269 |
| Dallas | Selma R. No. 4 | T. G. Kenan | 257 |
| Dallas | Central Mills | C. E. Shuptrine | 258 |
| Dallas | Orrville | B. F. Wilson | 264 |
| Dallas | Marion Junction | M. F. Smith | 287 |
| Escambia | Atmore | J. W. Jones | 294 |
| Escambia | Brewton | G. W. Brown | 294 |
| Geneva | Slocomb | J. G. Lewis | 291 |
| Greene | Knoxville | T. H. Chambers | 248 |
| Greene | Clinton | W. W. Morgan | 295 |

| COUNTY | POSTOFFICE | NAME | Page |
|------------|--------------|---------------------|------|
| Hale | Prairieville | J. H. Collins | 251 |
| Henry | Columbia | F. B. Douglas | 273 |
| Henry | Headland | R. W. Ward | 294 |
| Henry | Headland | J. T. Knowles | 293 |
| Henry | Columbia | R. L. Williams | 287 |
| Houston | Dothan | T. J. Herring | 270 |
| Lowndes | Letohatchie | J. B. Mitchell, Jr. | 289 |
| Macon | Notasulga | B. H. May | 275 |
| Macon | Ft. Davis | F. M. Davis | 276 |
| Mobile | Chunchula | W. A. Mims | 285 |
| Monroe | Monroeville | M'roe F'm Land Co. | 278 |
| Monroe | Jones Mill | A. L. Harrison | 287 |
| Montgomery | Hope Hull | Dr. Frank McLean | 252 |
| Perry | Hamburg | J. H. Lee | 254 |
| Perry | Felix | J. M. Alexander | 287 |
| Perry | Marion | Geo. W. Thomas | 255 |
| Pike | Brundidge | J. N. Colley | 288 |
| Pike | Troy | R. P. Rhodes | 267 |
| Russell | Seale | J. B. Billups | 287 |
| Sumter | Geiger | E. A. Gilbert | 246 |
| Sumter | Livingston | W. L. Ennis | 249 |
| Washington | Leroy | T. Lee Porter | 283 |
| Wilcox | Camden | G. M. Cook | 260 |
| Wilcox | Sunny South | J. D. Carmichael | 263 |
| Wilcox | Allenton | J. H. Jones, Jr. | 261 |

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 | POSTOFFICE | NAME |
|------------|--------------|----------------|
| Autauga | Autaugaville | M. M. Smith |
| Barbour | Clayton | L. L. White |
| Butler | Greenville | W. T. Thagard |
| Choctaw | Silas | M. Slay |
| Clarke | Suggsville | J. J. Hunter |
| Dallas | Berlin | Joe Buster |
| Greene | West Greene | W. M. Owens |
| Hale | Havana | W. T. Martin |
| Houston | Dothan | B. E. Napier |
| Marengo | Dayton | J. B. Askew |
| Marengo | Linden | E. W. Drinkard |
| Montgomery | Sellers | J. C. Mizell |
| Pike | Troy | H. W. Ballard |
| Russell | Pittsview | F. P. Pitts |

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 treat-

ment 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 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.* The following table shows what kind and amounts of fertilizers were used on certain plots; the number of pounds of nitro-

*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.

gen, 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.

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

| Plot No. | FERTILIZERS | | MIXTURE CONTAINS | | | COST OF FERTILIZERS | |
|----------|-----------------|--------------------------------|------------------|----------------------------|--------|---------------------|----------|
| | Amount per acre | KIND | Nitrogen | †Available phosphoric acid | Potash | Per ton | Per acre |
| | Lbs. | | Lbs. | Lbs. | Lbs. | | |
| 1 | 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..... | | 36.12 | | | |
| | | <i>In 100 lbs. acid phos.</i> | | 15.05 | | | |
| 4 | 200 | Kainit..... | | | 24.60 | 14.00 | 1.40 |
| | | <i>In 100 lbs. kainit</i> | | | 12.30 | | |
| 5 | 200 | Cotton seed meal..... | 13.58 | 41.88 | 3.54 | 21.27 | 4.68 |
| | 240 | Acid phosphate..... | | | | | |
| | | <i>In 100 lbs. above mixt.</i> | | | | | |
| 6 | 200 | Cotton seed meal..... | 13.58 | 5.76 | 28.14 | 22.00 | 4.40 |
| | 200 | Kainit..... | | | | | |
| | | <i>In 100 lbs. above mixt.</i> | | | | | |
| 8 | 240 | Acid phosphate..... | | | 8.21 | 13.99 | 3.08 |
| | 200 | Kainit..... | | | | | |
| | | <i>In 100 lbs. above mixt.</i> | | | | | |
| 9 | 200 | Cotton seed meal..... | 13.58 | 41.88 | 28.14 | 19.00 | 6.08 |
| | 240 | Acid phosphate..... | | | | | |
| | 200 | Kainit..... | | | | | |
| | | <i>In 100 lbs. above mixt.</i> | 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..... | | | | | |
| | | <i>In 100 lbs. above mixt.</i> | 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..... | | | | | |
| | | <i>In 100 lbs. above mixt.</i> | 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 $1\frac{3}{4}$

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 $33\frac{1}{3}$ 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.

SUMTER COUNTY, $1\frac{1}{2}$ MILES SOUTH OF GEIGER.

E. A. GILBERT.

Light colored stiff branch-bottom with red subsoil.

This land has been long in cultivation. The preceding crop was corn. Rust and boll rot (anthracnose) did some injury; but caterpillars did little damage. The stand was good.

All fertilizers were profitable. The most profitable combination was acid phosphate and kainit, affording a profit of \$12.75 per acre. Almost equally profitable (\$11.42, \$11.16, and \$10.16 per acre) were the complete fertilizers. Kainit was most effective, being credited with an average increase of 274 pounds of seed cotton per acre, as compared with an increase of 156 pounds for acid phosphate and 133 pounds for cotton seed meal.

The percentage of profit for the investment in fertilizer is 408 per cent in the case of a mixture of acid phosphate and kainit; 188 per cent for the complete fertilizer (Plot 9), and 208 per cent for the complete fertilizer containing a half ration of kainit. See page 247.

Evidently fertilizer is a highly profitable investment on this soil.

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

Increase of seed cotton when cotton seed meal was added:

| | |
|--|-----------------|
| To unfertilized plot | 176 lbs. |
| To acid phosphate plot | 156 lbs. |
| To kainit plot | 140 lbs. |
| To acid phosphate and kainit plot | 58 lbs. |
| <i>Average increase with cotton seed meal.....</i> | <u>133 lbs.</u> |

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

| | |
|--|----------|
| To unfertilized plot | 88 lbs. |
| To cotton seed meal | 68 lbs. |
| To kainit plot | 275 lbs. |
| To cotton seed meal and kainit plot..... | 193 lbs. |

Average increase with acid phosphate..... 156 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|--|----------|
| To unfertilized plot | 214 lbs. |
| To cotton seed meal plot | 178 lbs. |
| To acid phosphate plot | 401 lbs. |
| To cotton seed meal and acid phosphate plot..... | 303 lbs. |

Average increase with kainit

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|----------|
| To use of 200 pounds kainit | 303 lbs. |
| To use of 100 pounds kainit | 273 lbs. |

Increase from use of nitrate of soda 11 lbs.

Increase from use of cotton seed meal 58 lbs.

Cotton seed meal better by

Experiments at Geiger and Knoxville

| | | | GEIGER | | | KNOXVILLE | | |
|----------|----------------------------|-----------------------|-------------------|-------------------|-------------|-------------------|-------------------|-------------|
| Plot No. | Amount fertilizer per acre | KIND | Yield seed cotton | Increase over | Profit from | Yield seed cotton | Increase over | Profit from |
| | | | per acre | unfertilized plot | fertilizer | per acre | unfertilized plot | fertilizer |
| | | | Lbs. | Lbs. | \$ | Lbs. | Lbs. | \$ |
| 1 | 200 | Cotton seed meal .. | 488 | 176 | \$ 2.63 | 792 | 248 | \$ 4.94 |
| 2 | 240 | Acid phosphate | 400 | 88 | 1.14 | 704 | 160 | 3.44 |
| 3 | 000 | No fertilizer | 312 | --- | --- | 544 | --- | --- |
| 4 | 200 | Kainit | 520 | 214 | 5.45 | 560 | 12 | 1.02 |
| 5 | 200 | Cotton seed meal } .. | 544 | 244 | 3.13 | 872 | 320 | 5.56 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal } .. | 648 | 354 | 6.93 | 896 | 340 | 6.48 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 288 | --- | --- | 560 | --- | --- |
| | 240 | Acid phosphate | | | | | | |
| 8 | 200 | Kainit | 776 | 489 | 12.57 | 680 | 130 | 1.08 |
| | 200 | Cotton seed meal .. | | | | | | |
| 9 | 240 | Acid phosphate | 832 | 547 | 12.42 | 768 | 228 | 1.22 |
| | 200 | Kainit | | | | | | |
| 10 | 200 | Cotton seed meal .. | 800 | 517 | 11.16 | 784 | 254 | 2.75 |
| | 240 | Acid phosphate | | | | | | |
| 11 | 100 | Kainit | 282 | --- | --- | 520 | --- | --- |
| | 000 | No fertilizer | | | | | | |
| 12 | 240 | Acid phosphate | 752 | 470 | 10.16 | 928 | 408 | 8.18 |
| | 100 | Kainit | | | | | | |
| | 100 | Nitrate of soda .. | | | | | | |

GREENE COUNTY, 16 MILES NORTH OF EUTAW,
NEAR KNOXVILLE.

T. H. CHAMBERS.

Gray sandy land, with red clay subsoil.

This land has been cleared for about 60 years. The preceding crops were oats followed by corn. The stand of cotton was good. There was no rust reported. The most profitable application was the complete fertilizer containing nitrate of soda. (Plot 12,) which afforded a profit of \$8.18 per acre, or 188 per cent on the investment in fertilizers. The most profitable single application was cotton seed meal, which gave a profit of \$7.94 per acre, or 165 per cent on the investment in fertilizers. See page 247.

The average estimated increase of seed cotton per acre was 209 pounds for cotton seed meal; 60 pounds for acid phosphate; there was a loss of 5 pounds where kainit was used.

Nitrate of soda applied June 14th was much more effective than an earlier and larger application of cotton seed meal.

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

| | |
|---|----------|
| To unfertilized plot | 248 lbs. |
| To acid phosphate plot | 160 lbs. |
| To kainit plot | 328 lbs. |
| To acid phosphate and kainit plot | 98 lbs. |

Average increase with cotton seed meal..... 209 lbs.

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

| | |
|--|----------|
| To unfertilized plot | 160 lbs. |
| To cotton seed meal plot | 72 lbs. |
| To kainit plot | 118 lbs. |
| To cotton seed meal and kainit plot..... | 112 lbs. |

Average increase with acid phosphate..... 60 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|--|----------|
| To unfertilized plot | 12 lbs. |
| To cotton seed meal plot | 92 lbs. |
| To acid phosphate plot..... | —30 lbs. |
| To cotton seed meal and acid phosphate plot..... | —92 lbs. |

Average increase with kainit —5 lbs.

Increase from use of cotton seed meal..... 98 lbs.

Increase from use of nitrate of soda... 252 lbs.

Nitrate better by 154 lbs.

SUMTER COUNTY, 4 MILES EAST OF LIVINGSTON.

W. L. ENNIS.

Sandy loam, yellow clay subsoil.

This land was in cotton in 1910. There was some damage by the cotton caterpillar and wilt. The stand was fairly good. The figures here published do not include the first picking, the seed cotton of this picking having been accidentally mixed by laborers. Fortunately the first picking included only a small part of the total crop. Mr. Ennis believes that the yields made at second and third pickings represent fairly well the relative effects of the different fertilizers.

The most profitable application was kainit applied alone, which afforded an increase worth \$9.10 per acre in the later pickings, or 650 per cent on the investment in fertilizers. In all combinations where kainit was included the applications were highly profitable. The average estimated increase of seed cotton in the second and third pickings was with cotton seed meal, 50 pounds per acre; with acid phosphate, 26 pounds; and with kainit 310 pounds.

Nitrate of soda, applied May 28th, afforded in the last two pickings a larger yield than did cotton seed meal.

Yields and increases in crop of second and third pickings at Livingston

| Plot No. | Amount fertilizer per acre | KIND | Yield seed cotton per cotton | Increase over unfertilized plot | Profit from fertilizer |
|----------|----------------------------|------------------|------------------------------|---------------------------------|------------------------|
| | Lbs. | | Lbs. | Lbs. | |
| 1 | 200 | Cotton seed meal | 400 | 96 | \$.07 |
| 2 | 240 | Acid phosphate | 376 | 72 | .62 |
| 3 | 000 | No fertilizer | 304 | --- | --- |
| 4 | 200 | Kainit | 608 | 328 | 9.10 |
| 5 | 200 | Cotton seed meal | 336 | 80 | -2.12 |
| | 240 | Acid phosphate | | | |
| 6 | 200 | Cotton seed meal | 624 | 392 | 8.14 |
| | 200 | Kainit | | | |
| 7 | 000 | No fertilizer | 208 | --- | --- |
| 8 | 240 | Acid phosphate | 584 | 370 | 8.76 |
| | 200 | Kainit | | | |
| 9 | 200 | Cotton seed meal | 616 | 396 | 6.59 |
| | 240 | Acid phosphate | | | |
| | 200 | Kainit | | | |
| 10 | 200 | Cotton seed meal | 432 | 206 | 1.21 |
| | 240 | Acid phosphate | | | |
| | 100 | Kainit | | | |
| 11 | 000 | No fertilizer | 232 | --- | --- |
| | 240 | Acid phosphate | | | |
| 12 | 100 | Kainit | 520 | 288 | 434 |
| | 100 | Nitrate of soda | | | |

Increase of seed cotton when cotton seed meal was added:

| | |
|-----------------------------------|---------|
| To unfertilized plot | 96 lbs. |
| To acid phosphate plot | 8 lbs. |
| To kainit plot | 64 lbs. |
| To acid phosphate and kainit plot | 26 lbs. |

Average increase with cotton seed meal 50 lbs.

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

| | |
|-------------------------------------|----------|
| To unfertilized plot | 72 lbs. |
| To cotton seed meal plot | -16 lbs. |
| To kainit plot | 42 lbs. |
| To cotton seed meal and kainit plot | 4 lbs. |

Average increase with acid phosphate 26 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|---|----------|
| To unfertilized plot | 328 lbs. |
| To cotton seed meal plot | 296 lbs. |
| To acid phosphate plot | 298 lbs. |
| To cotton seed meal and acid phosphate plot | 316 lbs. |

Average increase with kainit 310 lbs

Increase from use of different quantities of kainit:

| | |
|--------------------------------|----------|
| To use 200 pounds kainit | 316 lbs. |
| To use 100 pounds kainit | 126 lbs. |

Increase from use of nitrate of soda108 lbs.

Increase from use of cotton seed meal 26 lbs.

Nitrate better by 82 lbs.

HALE COUNTY, 1 MILE NORTHEAST OF GALLION.

J. H. COLLINS.

Black prairie upland.

For several years preceding, the land has been in Johnson grass, cut for hay; preparation consisted of broadcast plowing, harrowing, bedding, and use of sweep. The stand was good, but the crop was late in coming up.

Worms were not seriously injurious, but the crop was injured by excessive rain and shedding in August.

Nitrate of soda, applied June 20th, proved practically of the same value as the earlier application of twice as much cotton seed meal

The only really profitable application was a mixture of acid phosphate and kainit (Plot 8), which afforded a profit of \$2.20 per acre, or a profit of 71 per cent on the amount invested in fertilizer.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|---------|
| To unfertilized plot | 80 lbs. |
| To acid phosphate plot..... | 92 lbs. |
| To kainit plot | 68 lbs. |
| To acid phosphate and kainit plot | 16 lbs. |

Average increase with cotton seed meal..... 64 lbs.

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

| | |
|---|----------|
| To unfertilized plot | 40 lbs. |
| To cotton seed meal plot | 52 lbs. |
| To kainit plot | 110 lbs. |
| To cotton seed meal and kainit plot | 58 lbs. |

Average increase with acid phosphate 65 lbs.

Increase of seed cotton when kainit was added:

| | |
|--|----------|
| To unfertilized plot | 58 lbs. |
| To cotton seed meal plot | 46 lbs. |
| To acid phosphate plot | 128 lbs. |
| To cotton seed meal and acid phosphate plot..... | 52 lbs. |

Average increase with kainit 71 lbs.

Increase from use of different quantities of kainit:

To use of 200 pounds kainit 52 lbs.
 To use of 100 pounds kainit 29 lbs.

Increase from use of cotton seed meal in complete fertilizer .. 16 lbs.

Increase from use of nitrate of soda..... 23 lbs.

Nitrate better by 7 lbs.

Experiments in Hale and Montgomery Counties

| Plot No | Amount ferti- lizer per acre | KIND | GALLION | | | McGEHEES | | |
|---------|---------------------------------|----------------------|-------------------------------|------------------------------------|---------------------------|-------------------------------|------------------------------------|---------------------------|
| | | | Yield seed cotton per acre | Increase over unfertilized plot | Profit from fertilizer | Yield seed cotton per acre | Increase over unfertilized plot | Profit from fertilizer |
| 1 | 200 | Cotton seed meal .. | Lbs. 304 | Lbs. 80 | \$ - .44 | Lbs. 352 | Lbs. 96 | \$ 0.07 |
| 2 | 240 | Acid phosphate.... | 264 | 40 | - .40 | 448 | 192 | 4.46 |
| 3 | 000 | No fertilizer..... | 224 | --- | --- | 256 | --- | --- |
| 4 | 200 | Kainit..... | 280 | 58 | .46 | 501 | 224 | 5.77 |
| 5 | 200 | Cotton seed meal } | 352 | 132 | - .45 | 608 | 310 | 5.24 |
| | 240 | Acid phosphate... } | | | | | | |
| 6 | 200 | Cotton seed meal } | 344 | 126 | - .37 | 841 | 521 | 12.27 |
| | 200 | Kainit..... } | | | | | | |
| 7 | 000 | No fertilizer..... | 216 | --- | --- | 341 | --- | --- |
| 8 | 240 | Acid phosphate... } | 392 | 168 | 2.30 | 736 | 395 | 9.56 |
| | 200 | Kainit..... } | | | | | | |
| 9 | 200 | Cotton seed meal } | 416 | 184 | - .19 | 629 | 288 | 3.14 |
| | 240 | Acid phosphate... } | | | | | | |
| 10 | 200 | Kainit..... } | 401 | 161 | - .23 | 408 | 288 | 3.84 |
| | 100 | Cotton seed meal } | | | | | | |
| 11 | 000 | No fertilizer..... | 248 | --- | --- | 120 | --- | --- |
| | 240 | Acid phosphate... } | | | | | | |
| 12 | 100 | Kainit..... } | 416 | 168 | .50 | 368 | 284 | 4.06 |
| | 100 | Nitrate of soda .. } | | | | | | |

MONTGOMERY COUNTY, 3 MILES SOUTHEAST OF
 McGEHEES.

DR. FRANK McLEAN

Poor gray prairie soil.

This test was located on the poorest spot that could be found adjacent to the public road on Dr. McLean's plantation, eleven miles south of Montgomery. The comparatively small yields

are due not alone to the thinness of the soil, but also to the late date of planting, May 6th.

The preceding crop was corn.

An inspection in August showed that the plots receiving kainit had much less rust than others, and that there was less rust where 200 pounds of kainit per acre was used than where 100 pounds was employed. However, the increase in the crop proved to be the same for 100 pounds as for 200 pounds of kainit per acre in a complete fertilizer. At the same time it was noticed that the phosphate had hastened the maturity and that on the kainit plots both bolls and plants were apparently larger than on other plots.

Every fertilizer was profitable, whether applied alone, or in pairs, or all together in a complete fertilizer.

The most profitable application was a mixture of cotton seed meal and kainit (Plot 6), which afforded a profit of \$12.27 per acre, or a profit of 279 per cent on the amount invested in fertilizer.

Of the several fertilizers, kainit was the most effective, affording an average increase of 284 pounds of seed cotton per acre, as against an average increase of 192 pounds from acid phosphate, and of 170 pounds from cotton seed meal.

The stand was very uniform. Apparently Plot 9 was below the average in fertility and its results are excluded from this discussion.

Increase of seed cotton when cotton seed meal was added:

| | |
|------------------------------|----------|
| To unfertilized plot | 96 lbs. |
| To acid phosphate plot | 118 lbs. |
| To kainit plot | 297 lbs. |

Average increase with cotton seed meal..... **170 lbs.**

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

| | |
|--------------------------------|----------|
| To unfertilized plot | 192 lbs. |
| To cotton seed meal plot | 214 lbs. |
| To kainit plot | 171 lbs. |

Average increase with acid phosphate..... **192 lbs.**

Increase of seed cotton per acre when kainit was added:

| | |
|--------------------------------|----------|
| To unfertilized plot | 224 lbs. |
| To cotton seed meal plot | 425 lbs. |
| To acid phosphate plot | 203 lbs. |

Average increase with kainit **284 lbs.**

PERRY COUNTY, $\frac{1}{4}$ MILE SOUTH OF HAMBURG.

J. H. LEE.

Red clay soil with red clay subsoil.

This land was pastured in 1909 and 1910. The stand was good. Some damage was done by the cotton caterpillar. The summer season was too wet. The yield was low on all plots where acid phosphate and kainit were used. Cotton seed meal gives the best yields, showing an average increase of 238 pounds of seed cotton per acre, against 77 pounds for acid phosphate, and 27 pounds for kainit. The cotton seed meal used above gave a profit of \$10.57 per acre, or 352 per cent on the investment in fertilizers. See page 255.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|-----------------|
| To unfertilized plot | 424 lbs. |
| To acid phosphate plot | 44 lbs. |
| To kainit plot | 404 lbs. |
| To acid phosphate and kainit plot | 78 lbs. |
| <i>Average increase with cotton seed meal</i> | <i>238 lbs.</i> |

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

| | |
|---|-----------------|
| To unfertilized plot | 160 lbs. |
| To cotton seed meal plot | -220 lbs. |
| To kainit plot | 40 lbs. |
| To cotton seed meal and kainit plot | -286 lbs. |
| <i>Average increase with acid phosphate</i> | <i>-77 lbs.</i> |

Increase of seed cotton per acre when kainit was added:

| | |
|---|-----------------|
| To unfertilized plot | 3 lbs. |
| To cotton seed meal plot | 10 lbs. |
| To acid phosphate plot | -90 lbs. |
| To cotton seed meal and acid phosphate plot | -56 lbs. |
| <i>Average increase with kainit</i> | <i>-27 lbs.</i> |

Increase from use of different quantities of kainit:

| | |
|--------------------------------|-----------|
| To use 200 pounds kainit | -56 lbs. |
| To use 100 pounds kainit | -130 lbs. |

Increase from use of cotton seed meal

Increase from use of nitrate of soda

Nitrate better by

Experiments in Perry County

| | | | HAMBURG | | | MARIO | | |
|----------|----------------------------|-----------------------|-------------------|-------------------|-------------|-------------------|-------------------|-------------|
| Plot No. | Amount fertilizer per acre | KIND | Yield seed cotton | Increase over | Profit from | Yield seed cotton | Increase over | Profit from |
| | | | per acre | unfertilized plot | fertilizer | per acre | unfertilized plot | fertilizer |
| | Lbs. | | Lbs. | Lbs. | \$ | Lbs. | Lbs. | \$ |
| 1 | 200 | Cotton seed meal .. | 824 | 424 | \$10 57 | 716 | 268 | \$ 5.58 |
| 2 | 240 | Acid phosphate | 560 | 160 | 3.44 | 472 | 24 | .91 |
| 3 | 000 | No fertilizer | 400 | --- | --- | 448 | --- | --- |
| 4 | 200 | Kainit | 440 | 30 | -.44 | 440 | -2 | -1.46 |
| 5 | 200 | Cotton seed meal } .. | 624 | 204 | 1.85 | 368 | -68 | -3.66 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal } .. | 864 | 434 | 9.19 | 768 | 338 | 6.42 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 440 | --- | --- | 424 | --- | --- |
| 8 | 240 | Acid phosphate | 464 | 70 | -.84 | 456 | 42 | -1.74 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal .. | 496 | 148 | -1.34 | 584 | 180 | -.32 |
| | 240 | Acid phosphate | | | | | | |
| 10 | 200 | Cotton seed meal .. | 376 | 74 | -3.01 | 552 | 158 | 2.88 |
| | 240 | Acid phosphate | | | | | | |
| 11 | 100 | Kainit | 256 | --- | --- | 384 | --- | --- |
| 12 | 000 | No fertilizer | 456 | 200 | 1.52 | 684 | 264 | 3.56 |
| | 240 | Acid phosphate | | | | | | |
| | 100 | Nitrate of soda .. | | | | | | |

PERRY COUNTY, 2½ MILES SOUTH OF MARION.

GEORGE W. THOMAS.

Red sandy loam with red clay subsoil.

This land has been cleared about 80 years. The preceding crop was corn. Very little shedding was reported, and no damage from rust. There was a good stand, with the same number of plants on every plot. There was no damage reported from the cotton caterpillar. Nitrogenous fertilizers proved to be the governing factor on this soil. Kainit and acid phosphate alone or in combination were not very profitable, but complete fertilizers made good yields. The largest profit, \$6.42 per acre, was afforded by a mixture of cotton seed meal and kainit. Cotton seed meal alone gave next to the highest yield, affording a profit of \$5.55 per acre, against a profit of \$2.88 for a complete fertilizer. The

average estimated increase of seed cotton per acre was 164 pounds for cotton seed meal; there was an average loss of 104 pounds for acid phosphate, and an average gain of 84 pounds of seed cotton per acre for kainit.

Nitrate of soda applied July 10th, was more effective than cotton seed meal.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|-----------------|
| To unfertilized plot | 268 lbs. |
| To acid phosphate plot | —92 lbs. |
| To kainit plot | 340 lbs. |
| To acid phosphate and kainit plot | 138 lbs. |
| <i>Average increase with cotton seed meal</i> | 164 lbs. |

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

| | |
|---|------------------|
| To unfertilized plot | 24 lbs. |
| To cotton seed meal plot | —336 lbs. |
| To kainit plot | 44 lbs. |
| To cotton seed meal and kainit plot | —158 lbs. |
| <i>Average increase with acid phosphate</i> | —104 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|---|----------------|
| To unfertilized plot | —2 lbs. |
| To cotton seed meal plot | 70 lbs. |
| To acid phosphate plot | 18 lbs. |
| To cotton seed meal and acid phosphate plot | 248 lbs. |
| <i>Average increase with kainit</i> | 84 lbs. |

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|----------|
| To use of 200 pounds kainit | 248 lbs. |
| To use of 100 pounds kainit | 226 lbs. |

Increase from use of cotton seed meal 138 lbs.

Increase from use of nitrate of soda 224 lbs.

Nitrate better by

106 lbs.

DALLAS COUNTY, 6 MILES NORTH OF SELMA.

T. G. KENAN.

Chocolate colored clay loam with clay subsoil.

This land has been in cultivation for about 90 years. The preceding crop was corn. There was no damage reported from rust.

The complete fertilizers containing cotton seed meal were most profitable. Plot 10 affording a profit of \$16.32 per acre, or 305 per cent on the investment in fertilizers. Apparently all three fertilizing materials were needed.

The average increase of seed cotton per acre was, for cotton seed meal 131 pounds; for acid phosphate 122 pounds; and for kainit 235 pounds.

One hundred pounds of kainit was fully as affective as 200 pounds.

Cotton seed meal gave much better results than nitrate of soda applied June 10.

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

| | |
|--|----------|
| To unfertilized plot | 376 lbs. |
| To acid phosphate plot | —32 lbs. |
| To kainit plot | —64 lbs. |
| To acid phosphate and kainit plot..... | 642 lbs. |

Average increase with cotton seed meal 231 lbs.

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

| | |
|---|-----------|
| To unfertilized plot | 424 lbs. |
| To cotton seed meal plot | 16 lbs. |
| To kainit plot | —330 lbs. |
| To cotton seed meal and kainit plot | 376 lbs. |

Average increase with acid phosphate 122 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|--|----------|
| To unfertilized plot | 356 lbs. |
| To cotton seed meal plot | —84 lbs. |
| To acid phosphate plot | 398 lbs. |
| To cotton seed meal and acid phosphate plot..... | 276 lbs. |

Average increase with kainit 236 lbs.

Increase from use of different quantities of kainit:

To use of 200 pounds kainit 276 lbs.
 To use of 100 pounds kainit 286 lbs.

Increase from use of cotton seed meal..... 642 lbs.

Increase from use of nitrate of soda 316 lbs.

Nitrate better by—326 lbs.

Experiments in Dallas County

| | | | SELMA | | | CENTRAL MILLS | | |
|----------|----------------------------|----------------------|-------------------|---------------------------------|------------------------|-------------------|---------------------------------|------------------------|
| Plot No. | Amount fertilizer per acre | KIND | Yield seed cotton | Increase over unfertilized plot | Profit from fertilizer | Yield seed cotton | Increase over unfertilized plot | Profit from fertilizer |
| | | | per acre | | | per acre | | |
| | Lbs. | | Lbs. | Lbs. | \$ | Lbs. | Lbs. | \$ |
| 1 | 200 | Cotton seed meal .. | 928 | 376 | \$9.03 | 1040 | 128 | \$ 1.10 |
| 2 | 240 | Acid phosphate..... | 976 | 424 | 12.17 | 992 | 80 | .88 |
| 3 | 000 | No fertilizer..... | 552 | --- | --- | 912 | --- | --- |
| 4 | 200 | Kainit..... | 896 | 356 | 9.99 | 992 | 80 | 1.16 |
| 5 | 200 | Cotton seed meal } | 920 | 392 | 7.86 | 1024 | 112 | —1.10 |
| | 240 | Acid phosphate.. } | | | | | | |
| 6 | 200 | Cotton seed meal } | 808 | 292 | 4.94 | 968 | 56 | —2 61 |
| | 200 | Kainit..... } | | | | | | |
| 7 | 000 | No fertilizer..... | 504 | --- | --- | 912 | --- | --- |
| 8 | 240 | Acid phosphate..... | 536 | 26 | —2.25 | 976 | 56 | —1.29 |
| | 200 | Kainit..... } | | | | | | |
| 9 | 200 | Cotton seed meal } | 1184 | 668 | 15.30 | 1136 | 208 | .58 |
| | 240 | Acid phosphate.. } | | | | | | |
| | 200 | Kainit..... } | | | | | | |
| 10 | 240 | Cotton seed meal } | 1200 | 678 | 16.32 | 1176 | 240 | 2.30 |
| | 240 | Acid phosphate.. } | | | | | | |
| | 100 | Kainit..... } | 528 | --- | --- | 944 | --- | --- |
| 11 | 000 | No fertilizer..... | | | | | | |
| 12 | 240 | Acid phosphate..... | 808 | 352 | 6.38 | 1184 | 240 | 2.80 |
| | 100 | Kainit..... } | | | | | | |
| | 100 | Nitrate of soda .. } | | | | | | |

DALLAS COUNTY, 1 1-4 MILES FROM CENTRAL MILLS.

C. E. SHUPTRINE.

Black post oak bottom land, stiff clay.

This land has been cleared and cultivated in cotton for 15 years. There was a good and uniform stand.

No fertilizers gave any large net profit, the largest profit, \$2.80 per acre, resulting from a complete fertilizer (on Plot

12) containing acid phosphate, nitrate of soda, and 100 pounds of kainit, per acre.

The average increase in seed cotton per acre was 72 pounds for cotton seed meal; 48 pounds for acid phosphate; and 20 pounds for kainit. However, all three of these ingredients afforded larger increases when used together in a complete fertilizer. Nitrate of soda applied June 25 was equal in effect to cotton seed meal.

The yield was greater with 100 pounds than with 200 pounds of kainit per acre.

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

| | |
|---|----------------|
| To unfertilized plot | 128 lbs. |
| To acid phosphate plot | 32 lbs. |
| To kainit plot | —24 lbs. |
| To acid phosphate and kainit plot | 152 lbs. |
| <i>Average increase with cotton seed meal</i> | 72 lbs. |

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

| | |
|---|----------------|
| To unfertilized plot | 80 lbs. |
| To cotton seed meal plot | —16 lbs. |
| To kainit plot | —24 lbs. |
| To cotton seed meal and kainit plot | 152 lbs. |
| <i>Average increase with acid phosphate</i> | 48 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|---|----------------|
| To unfertilized plot | 80 lbs. |
| To cotton seed meal plot | —72 lbs. |
| To acid phosphate plot | —24 lbs. |
| To cotton seed meal and acid phosphate plot | 96 lbs. |
| <i>Average increase with kainit</i> | 20 lbs. |

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|----------|
| To use of 200 pounds kainit | 96 lbs. |
| To use of 100 pounds kainit | 128 lbs. |

Increase from use of cotton seed meal..... 152 lbs.

Increase from use of nitrate of soda 152 lbs.

Nitrate better by 00 lbs.

WILCOX COUNTY, 7 MILES WEST OF CAMDEN.

G. M. COOK.

Sandy loam.

This land has been cleared for 40 years. The preceding crop for several years has been cotton. The stand was good. Complete fertilizers were profitable as were also all applications of single and paired ingredients of a complete fertilizer. The highest estimated profit was on plot 12, where a complete fertilizer containing nitrate of soda afforded a profit of \$9.46 per acre, or 193 per cent on the investment in fertilizers.

The average estimated increase of seed cotton per acre was 189 pounds for cotton seed meal; 129 pounds for acid phosphate; and 137 pounds for kainit.

Nitrate of soda was decidedly more effective than was cotton seed meal. The results suggest that, at least in 1911, the use of 100 pounds of kainit per acre in a complete fertilizer was more advisable than a larger amount.

Increase of seed cotton when cotton seed meal was added:

| | |
|--|-----------------|
| To unfertilized plot | 128 lbs. |
| To acid phosphate plot | 336 lbs. |
| To kainit plot | 248 lbs. |
| To acid phosphate and kainit plot | 44 lbs. |
| <i>Average increase with cotton seed meal.....</i> | 189 lbs. |

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

| | |
|--|-----------------|
| To unfertilized plot | 24 lbs. |
| To cotton seed meal plot | 232 lbs. |
| To kainit plot | 232 lbs. |
| To cotton seed meal and kainit plot | 28 lbs. |
| <i>Average increase with acid phosphate.....</i> | 129 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|---|-----------------|
| To unfertilized plot | 76 lbs. |
| To cotton seed meal plot | 196 lbs. |
| To acid phosphate plot | 284 lbs. |
| To cotton seed meal and acid phosphate plot | —8 lbs. |
| <i>Average increase with kainit</i> | 137 lbs. |

Increase from use of cotton seed meal..... 44 lbs.

Increase from use of nitrate of soda 146 lbs.

Nitrate better by **102 lbs.**

Experiments at Camden and Allenton

| | | | CAMDEN | | | ALLENTON | | |
|----------|----------------------------|------------------|----------------------------|---------------------------------|------------------------|----------------------------|---------------------------------|------------------------|
| 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 | 432 | 128 | \$ 1.10 | 976 | 152 | \$ 1.86 |
| 2 | 240 | Acid phosphate | 328 | 24 | — .91 | 896 | 72 | .62 |
| 3 | 000 | No fertilizer | 304 | --- | --- | 824 | --- | --- |
| 4 | 200 | Kainit | 384 | 76 | 1.03 | 824 | 16 | .89 |
| 5 | 200 | Cotton seed meal | 672 | 360 | 6.84 | 1064 | 272 | 4.02 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal | 640 | 324 | 5.97 | 1054 | 279 | 4.53 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 320 | --- | --- | 759 | --- | --- |
| 8 | 240 | Acid phosphate | 632 | 308 | 6.78 | 696 | 35 | 4.20 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal | 680 | 352 | 5.18 | 772 | 68 | 3.90 |
| | 240 | Acid phosphate | | | | | | |
| | 200 | Kainit | | | | | | |
| 10 | 200 | Cotton seed meal | 648 | 316 | 4.73 | 800 | 124 | 1.41 |
| | 240 | Acid phosphate | | | | | | |
| 11 | 100 | Kainit | 336 | --- | --- | 648 | --- | --- |
| | 000 | No fertilizer | | | | | | |
| 12 | 240 | Acid phosphate | 784 | 448 | 9.46 | 952 | 304 | 4.85 |
| | 100 | Nitrate of soda | | | | | | |

WILCOX COUNTY 4 MILES NORTHWEST OF ALLENTON.

J. H. JONES, JR.

Red clay loam.

The preceding crop for several years has been cotton. There was no rust or damage from insect attacks. The stand was poor on account of wind and hail in July. Plots 5, 6, 7, 8, 9 and 10 were the most deficient. Plot 11 had 759 plants, which was an average number for a correct stand and with this as a basis the actual yield on the plots mentioned above were corrected accordingly. Cotton seed meal gave the best results in each plot where it was used. Kainit and acid phosphate were not profitable as indicated by this test.

The average estimated increase of seed cotton from the use of cotton seed meal was 180 pounds; with acid phosphate there was an average loss of 18 pounds; and with kainit there was an average gain of 42 pounds of seed cotton per acre.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|-----------------|
| To unfertilized plot | 152 lbs. |
| To acid phosphate plot | 200 lbs. |
| To kainit plot | 263 lbs. |
| To acid phosphate and kainit plot | 103 lbs. |
| <i>Average increase with cotton seed meal</i> | 180 lbs. |

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

| | |
|---|-----------------|
| To unfertilized plot | 72 lbs. |
| To cotton seed meal plot | 120 lbs. |
| To kainit plot | -51 lbs. |
| To cotton seed meal and kainit plot | -211 lbs. |
| <i>Average increase with acid phosphate</i> | -18 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|---|-----------------|
| To unfertilized plot | 16 lbs. |
| To cotton seed meal plot | 127 lbs. |
| To acid phosphate plot | -107 lbs. |
| To cotton seed meal and acid phosphate plot | -204 lbs. |
| <i>Average increase with kainit</i> | -42 lbs. |

Increase from use of cotton seed meal..... 103 lbs.

Increase from use of nitrate of soda..... 283 lbs.

Nitrate better by **180 lbs.**

WILCOX COUNTY, 300 YARDS NORTH OF SUNNY
SOUTH.

J. D. CARMICHAEL.

Gray loam upland with yellow clay subsoil.

This field has been in cultivation for about twenty years; the two preceding crops were cotton. Mr. Carmichael made no report of damage from insect or rust, but reports serious loss from unfavorable weather and from shedding in August.

The most profitable increase, \$10.04 per acre, or 323 per cent on the investment in fertilizer, resulted from a mixture of acid phosphate and kainit. The mixture of cotton seed meal and acid phosphate afforded a net profit of \$4.79 per acre, or 100 per cent on the investment in fertilizer.

The average increase in pounds of seed cotton per acre attributable to acid phosphate was 180 pounds; to kainit 108 pounds; and to cotton seed meal only 15 pounds.

Nitrate of soda, applied June 12th, was largely ineffective.

Increase of seed cotton when cotton seed was added:

| | |
|---|----------------|
| To unfertilized plot | 00 lbs. |
| To acid phosphate plot | 208 lbs. |
| To kainit plot | 96 lbs. |
| To acid phosphate and kainit plot | —246 lbs. |
| <i>Average increase with cotton seed meal</i> | 15 lbs. |

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

| | |
|---|-----------------|
| To unfertilized plot | 88 lbs. |
| To cotton seed meal plot | 296 lbs. |
| To kainit plot | 338 lbs. |
| To cotton seed meal and kainit plot | —4 lbs. |
| <i>Average increase with acid phosphate</i> | 180 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|---|-----------------|
| To unfertilized plot | 72 lbs. |
| To cotton seed meal plot | 168 lbs. |
| To acid phosphate plot | 322 lbs. |
| To cotton seed meal and acid phosphate plot | —132 lbs. |
| <i>Average increase with kainit</i> | 108 lbs. |

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|-----------|
| To use of 200 pounds kainit | —132 lbs. |
| To use of 100 pounds kainit | —162 lbs. |

Increase from use of cotton seed meal

Increase from use of nitrate of soda

Cotton seed meal better by **44 lbs.**

Experiments in Dallas and Wilcox Counties

| | | | ORRVILLE | | | SUNNY SOUTH | | |
|----------|----------------------------|------------------|----------------------------|---------------------------------|------------------------|------------------------------|---------------------------------|------------------------|
| 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 | 592 | 144 | \$ 1.61 | 496 | 000 | \$ 0.00 |
| 2 | 240 | Acid phosphate | 544 | 96 | 1.39 | 584 | 88 | 1.14 |
| 3 | 000 | No fertilizer | 448 | ----- | ----- | 496 | ----- | ----- |
| 4 | 200 | Kainit | 600 | 118 | 2.38 | 608 | 72 | .90 |
| 5 | 200 | Cotton seed meal | 760 | 244 | 3.13 | 872 | 296 | 4.79 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal | 640 | 90 | -1.52 | 784 | 168 | .98 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 584 | ----- | ----- | 656 | ----- | ----- |
| 8 | 240 | Acid phosphate | 800 | 212 | 3.70 | 1064 | 410 | 10.04 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal | 904 | 312 | 3.90 | 816 | 164 | -.83 |
| | 240 | Acid phosphate | | | | | | |
| 10 | 200 | Cotton seed meal | 840 | 244 | 2.43 | 784 | 134 | -1.09 |
| | 100 | Kainit | | | | | | |
| 11 | 000 | No fertilizer | 600 | ----- | ----- | 648 | ----- | ----- |
| 12 | 240 | Acid phosphate | 800 | 200 | 1.52 | 1008 | 360 | 6.64 |
| | 100 | Kainit | | | | | | |
| | 100 | Nitrate of soda | | | | | | |

DALLAS COUNTY, 4 MILES SOUTH OF ORRVILLE.

B. F. WILSON.

Gray sandy land with yellowish subsoil.

This field had been cleared about forty years, but was not cultivated in 1908 and 1909. Rust was injurious, but no insect damage was reported. The stand was good.

The most profitable increase (\$3.70 and \$3.90) was from the complete fertilizers containing cotton seed meal (Plots 9 and 10). The average increase of seed cotton per acre was 128 pounds for acid phosphate; 91 pounds for cotton seed meal; and 62 pounds for kainit.

Cotton seed meal was superior to nitrate of soda applied June 15, by 44 pounds of seed cotton per acre.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|----------------|
| To unfertilized plot | 144 lbs. |
| To acid phosphate plot | 148 lbs. |
| To kainit plot | —28 lbs. |
| To acid phosphate and kainit plot | 100 lbs. |
| <i>Average increase with cotton seed meal</i> | <u>91 lbs.</u> |

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

| | |
|---|-----------------|
| To unfertilized plot | 96 lbs. |
| To cotton seed meal | 100 lbs. |
| To kainit plot | 94 lbs. |
| To cotton seed meal and kainit plot | 222 lbs. |
| <i>Average increase with acid phosphate</i> | <u>128 lbs.</u> |

Increase of seed cotton when kainit was added:

| | |
|---|----------------|
| To unfertilized plot | 118 lbs. |
| To cotton seed meal plot | —54 lbs. |
| To acid phosphate plot | 116 lbs. |
| To cotton seed meal and acid phosphate plot | 68 lbs. |
| <i>Average increase with kainit</i> | <u>62 lbs.</u> |

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|---------|
| To use of 200 pounds kainit | 68 lbs. |
| To use of 100 pounds kainit | 00 lbs. |

Increase from use of cotton seed meal

Increase from use of nitrate of soda

Cotton seed meal better by

BUTLER COUNTY, 1-3 MILE SOUTH OF MCKENZIE.

J. C. ARANT.

Light sandy loam, yellowish sandy subsoil.

This land has been cleared for eleven years. The preceding crop was cotton. There was some damage from rust. The stand was good except on Plot 12, where there was some wilt. The complete fertilizers all afforded a satisfactory profit. The largest increase was 500 pounds of seed cotton per acre from a mixture of cotton seed meal and acid phosphate, which returned a profit of \$11.32 per acre, or 242 per cent on the investment in fertilizers. The average estimated increase of seed cotton per acre for cotton seed meal was 185 pounds; for acid phosphate 266 pounds; while with kainit there was an average loss of 22 pounds of seed cotton.

Increase of seed cotton when cotton seed meal was added:

| | |
|--|-----------------|
| To unfertilized plot | 176 lbs. |
| To acid phosphate plot | 372 lbs. |
| To kainit plot | 136 lbs. |
| To acid phosphate and kainit plot | 56 lbs. |
| <i>Average increase with cotton seed meal.....</i> | <u>185 lbs.</u> |

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

| | |
|---|-----------------|
| To unfertilized plot | 128 lbs. |
| To cotton seed meal plot | 324 lbs. |
| To kainit plot | 346 lbs. |
| To cotton seed meal and kainit plot..... | 266 lbs. |
| <i>Average increase with acid phosphate</i> | <u>266 lbs.</u> |

Increase of seed cotton per acre when kainit was added:

| | |
|---|-----------------|
| To unfertilized plot | —42 lbs. |
| To cotton seed meal plot | —82 lbs. |
| To acid phosphate plot | 176 lbs. |
| To cotton seed meal and acid phosphate plot | —140 lbs. |
| <i>Average increase with kainit</i> | <u>—22 lbs.</u> |

Experiments at McKenzie and 8 Miles South of Troy

| | | | McKENZIE | | | 8 M. S. OF TROY | | |
|----------|----------------------------|------------------|----------------------------|---------------------------------|------------------------|----------------------------|---------------------------------|------------------------|
| 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 | 464 | 176 | 2.63 | 768 | 264 | 5.45 |
| 2 | 240 | Acid phosphate | 416 | 128 | 2.42 | 632 | 128 | 2.42 |
| 3 | 000 | No fertilizer | 288 | --- | --- | 504 | --- | --- |
| 4 | 200 | Kainit | 268 | 42 | 2.74 | 904 | 370 | 10.44 |
| 5 | 200 | Cotton seed meal | 832 | 500 | 11.32 | 776 | 212 | 2.10 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal | 448 | 94 | 1.39 | 936 | 342 | 6.54 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 376 | --- | --- | 624 | --- | --- |
| 8 | 240 | Acid phosphate | 656 | 304 | 6.65 | 800 | 186 | 2.87 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal | 688 | 360 | 5.44 | 864 | 260 | 2.24 |
| | 240 | Acid phosphate | | | | | | |
| | 200 | Kainit | | | | | | |
| 10 | 200 | Cotton seed meal | 704 | 400 | 7.42 | 816 | 222 | 1.72 |
| | 240 | Acid phosphate | | | | | | |
| 11 | 100 | Kainit | 280 | --- | --- | 584 | --- | --- |
| | 000 | No fertilizer | | | | | | |
| 12 | 240 | Acid phosphate | --- | --- | --- | 792 | 208 | 1.78 |
| | 100 | Kainit | | | | | | |
| | 100 | Nitrate of soda | --- | --- | --- | --- | --- | --- |

PIKE COUNTY, 8 MILES SOUTH OF TROY.

R. P. RHODES.

Gray land, clay subsoil.

This land has been cleared for about 20 years. The preceding crop was corn. There was no damage from rust or insect attacks. There was a good stand.

The largest profit, \$10.44 per acre, or a profit of 746 per cent on the investment in fertilizers was secured on the plot receiving only kainit. The next largest profit was from using cotton seed meal and kainit. Apparently potash was the constituent chiefly needed by this soil, while cotton seed meal was also helpful.

Nitrate of soda, applied June 16 was of practically the same value as an early application of cotton seed meal.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|----------------|
| To unfertilized plot | 264 lbs. |
| To acid phosphate plot | 84 lbs. |
| To kainit plot | —28 lbs. |
| To acid phosphate and kainit plot | 74 lbs. |
| <i>Average increase with cotton seed meal</i> | 99 lbs. |

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

| | |
|---|-----------------|
| To unfertilized plot | 128 lbs. |
| To cotton seed meal plot | —52 lbs. |
| To kainit plot | —184 lbs. |
| To cotton seed meal and kainit plot | —82 lbs. |
| <i>Average increase with acid phosphate</i> | —48 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|--|-----------------|
| To unfertilized plot | 370 lbs. |
| To cotton seed meal plot | 78 lbs. |
| To acid phosphate plot | 58 lbs. |
| To cotton seed meal and acid phosphate plot..... | 48 lbs. |
| <i>Average increase with kainit</i> | 138 lbs. |

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|---------|
| To use of 200 pounds kainit | 48 lbs. |
| To use of 100 pounds kainit | 10 lbs. |

| | |
|--|---------|
| Increase from use of cotton seed meal..... | 74 lbs. |
| Increase from use of nitrate of soda..... | 60 lbs. |

Cotton seed meal better by

14 lbs.

DALE COUNTY, 1 MILE SOUTH OF OZARK.

J. W. BYRD.

Light gray sandy loam, with reddish clay subsoil.

This land has been cleared for 60 years, and had been out of cultivation for 3 years prior to 1911. There was some rust on Plots 5 and 6. The stand was good. Kainit in every combination gave the largest yields. The highest estimated increase in yield was 606 pounds of seed cotton per acre with 640 pounds per acre of a complete fertilizer (Plot 9). This gave a profit of \$13.31 per acre, or 219 per cent on the investment in fertilizers. The next largest profit, \$10.70 per acre, or 243 per cent on the investment in fertilizers, was on Plot 6, fertilized with a mixture of cotton seed meal and kainit. The average estimated increase of seed cotton per acre was 222 pounds with cotton seed meal; 141 pounds with acid phosphate; and 254 pounds with kainit. In a complete fertilizer, nitrate of soda was very slightly less effective than cotton seed meal; 200 pounds of kainit per acre was more profitable than half this amount.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|-----------------|
| To unfertilized plot | 172 lbs. |
| To acid phosphate plot | 208 lbs. |
| To kainit plot | 256 lbs. |
| To acid phosphate and kainit plot | 251 lbs. |
| <i>Average increase with cotton seed meal</i> | <u>222 lbs.</u> |

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

| | |
|---|-----------------|
| To unfertilized plot | 128 lbs. |
| To cotton seed meal plot | 164 lbs. |
| To kainit plot | 139 lbs. |
| To cotton seed meal and kainit plot | 134 lbs. |
| <i>Average increase with acid phosphate</i> | <u>141 lbs.</u> |

Increase of seed cotton per acre when kainit was added:

| | |
|--|-----------------|
| To unfertilized plot | 216 lbs. |
| To cotton seed meal plot | 300 lbs. |
| To acid phosphate plot | 227 lbs. |
| To cotton seed meal and acid phosphate plot..... | 270 lbs. |
| <i>Average increase with kainit</i> | <u>254 lbs.</u> |

Increase from use of different quantities of kainit :

To use of 200 pounds of kainit 270 lbs.

To use of 100 pounds of kainit 169 lbs.

Increase from use of cotton seed meal 251 lbs.

Increase from use of nitrate of soda 210 lbs.

Cotton seed meal better by 41 lbs.

Experiments at Ozark and Dothan

| Plot No. | Amount fertilizer per acre | KIND | OZARK | | | DOTHAN | | |
|----------|----------------------------|------------------|----------------------------|---------------------------------|------------------------|----------------------------|---------------------------------|------------------------|
| | | | Yield seed cotton per acre | Increase over unfertilized plot | Profit from fertilizer | Yield seed cotton per acre | Increase over unfertilized plot | Profit from fertilizer |
| 1 | 200 | Cotton seed meal | Lbs. 372 | Lbs. 172 | \$ 2.50 | Lbs. 656 | Lbs. 184 | \$ 2.89 |
| 2 | 240 | Acid phosphate | 328 | 128 | 2.42 | 624 | 152 | 3.18 |
| 3 | 000 | No fertilizer | 200 | --- | --- | 472 | --- | --- |
| 4 | 200 | Kainit | 436 | 216 | 5.51 | 672 | 196 | 4.87 |
| 5 | 200 | Cotton seed meal | 576 | 336 | 6.07 | 736 | 256 | 3.51 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal | 732 | 472 | 10.70 | 824 | 340 | 6.48 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 280 | --- | --- | 488 | --- | --- |
| 8 | 240 | Acid phosphate | 640 | 355 | 8.28 | 880 | 362 | 8.50 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal | 896 | 606 | 13.31 | 1112 | 564 | 11.97 |
| | 240 | Acid phosphate | | | | | | |
| 10 | 200 | Cotton seed meal | 800 | 505 | 11.78 | --- | --- | --- |
| | 100 | Kainit | | | | | | |
| 11 | 000 | No fertilizer | 300 | --- | --- | 608 | --- | --- |
| | 240 | Acid phosphate | | | | | | |
| 12 | 100 | Kainit | 764 | 464 | 9.97 | 840 | 232 | 2.54 |
| | 100 | Nitrate of soda | | | | | | |

HOUSTON COUNTY, 1 MILE WEST OF DOTHAN.

T. J. HERRING.

Gray sandy land, yellow clay subsoil.

This land has been cleared for 14 years. The preceding crop was corn. There was no damage from rust or from insect attacks. The stand was good. The average increase of seed cotton per acre for cotton seed meal was 159 pounds; for acid phosphate 154 pounds; and for kainit 20 pounds.

The largest profit, \$11.97, or 197 per cent on the investment in fertilizers was made on Plot 9, which received 640 pounds per acre of a complete fertilizer.

| | |
|---|-----------------|
| Increase of seed cotton per acre when cotton seed meal was added: | |
| To unfertilized plot | 184 lbs. |
| To acid phosphate plot | 104 lbs. |
| To kainit plot | 144 lbs. |
| To acid phosphate and kainit plot | 202 lbs. |
| <i>Average increase with cotton seed meal</i> | 159 lbs. |
| Increase of seed cotton per acre when acid phosphate was added: | |
| To unfertilized plot | 152 lbs. |
| To cotton seed meal plot | 72 lbs. |
| To kainit plot | 166 lbs. |
| To cotton seed meal and kainit plot | 224 lbs. |
| <i>Average increase with acid phosphate</i> | 154 lbs. |
| Increase of seed cotton per acre when kainit was added: | |
| To unfertilized plot | 196 lbs. |
| To cotton seed meal plot | 156 lbs. |
| To acid phosphate plot | 210 lbs. |
| To cotton seed meal and acid phosphate plot | 308 lbs. |
| <i>Average increase with kainit</i> | 208 lbs. |

COFFEE COUNTY, 8 MILES SOUTH OF BROCKTON.

J. W. HARRY.

Red clay loam, red clay subsoil.

This land has been cultivated for about 30 years. The preceding crop was corn. There was no damage from rust or cotton caterpillars. There was a good stand. Plot 12 afforded the largest profit, \$7.92, or 162 per cent on the investment in fertilizers. The average estimated increase of seed cotton per acre was 100 pounds for cotton seed meal; 97 pounds for acid phosphate; and 51 pounds for kainit.

Nitrate of soda was more effective than cotton seed meal.

Kainit was but slightly needed or in relatively small amounts, 100 pounds answering practically as well as 200 pounds per acre.

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

| | |
|---|----------|
| To unfertilized plot | —8 lbs. |
| To acid phosphate plot | 80 lbs. |
| To kainit plot | 128 lbs. |
| To acid phosphate and kainit plot | 198 lbs. |

Average increase with cotton seed meal **100 lbs.**

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

| | |
|---|----------|
| To unfertilized plot | 80 lbs. |
| To cotton seed meal plot | 168 lbs. |
| To kainit plot | 38 lbs. |
| To cotton seed meal and kainit plot | 108 lbs. |

Average increase with acid phosphate **99 lbs**

Increase of seed cotton per acre when kainit was added:

| | |
|---|-----------|
| To unfertilized plot | 8 lbs. |
| To cotton seed meal plot | 144 lbs. |
| To acid phosphate plot | — 34 lbs. |
| To cotton seed meal and acid phosphate plot | 84 lbs. |

Average increase with kainit **51 lbs.**

Increase from use of different quantities of kainit:

| | |
|--------------------------------------|---------|
| To use of 200 pounds of kainit | 84 lbs. |
| To use of 100 pounds of kainit | 74 lbs. |

Increase from use of cotton seed meal..... 198 lbs.

Increase from use of nitrate of soda..... 364 lbs.

Nitrate better by **166 lbs.**

Experiments 8 Miles South of Brockton and 6 Miles North-West of Columbia

| | | 8 MI. S. OF BROCKTON | | | 6 MI. N -W. OF COLUMBIA | | | |
|----------|---------------------------------|-------------------------|-------------------------------|------------------------------------|----------------------------|-------------------------------|------------------------------------|---------------------------|
| Plot No. | Amount ferti- lizer 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 | 552 | —8 | —3.26 | 840 | 224 | 4.17 |
| 2 | 240 | Acid phosphate | 640 | 80 | .88 | 768 | 152 | 3.18 |
| 3 | 000 | No fertilizer | 560 | — | — | 616 | — | — |
| 4 | 200 | Kainit | 592 | 8 | —1.14 | 704 | 92 | 1.36 |
| 5 | 200 | Cotton seed meal | 768 | 160 | .44 | 840 | 232 | 2.74 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal | 768 | 136 | — .05 | 800 | 196 | 1.87 |
| | 200 | Kainit | | | | | | |
| 7 | 00 | No fertilizer | 656 | — | — | 600 | — | — |
| 8 | 240 | Acid phosphate | 696 | 46 | —1.61 | 752 | 134 | 1.21 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal | 888 | 244 | 1.73 | 904 | 268 | 2.50 |
| | 240 | Acid phosphate | | | | | | |
| 10 | 200 | Cotton seed meal | 872 | 234 | 2.11 | 984 | 330 | 5.18 |
| | 240 | Acid phosphate | | | | | | |
| 11 | 100 | Kainit | 632 | — | — | 672 | — | — |
| | 000 | No fertilizer | | | | | | |
| 12 | 240 | Acid phosphate | 1032 | 400 | 7.92 | 976 | 304 | 4.85 |
| | 100 | Kainit | | | | | | |
| | 100 | Nitrate of soda | | | | | | |

HENRY COUNTY, 6 MILES NORTHWEST OF
COLUMBIA.

F. B. DOUGLAS.

Red land with red clay subsoil.

This field has been in cultivation for 10 years. The preceding crop was cotton. There was no rust or damage from worms. About 100 pounds of seed cotton was lost, due to late picking. The stand was very uniform. Plot 10 fertilized with a mixture of cotton seed meal, acid phosphate, and kainit, gave the largest profit, \$5.18 per acre, or 96 per cent on the investment in fertilizers. Cotton seed meal was the most profitable of the fertilizers when applied singly, affording a profit of \$4.17 per acre or 159 per cent on the investment in fertilizers.

The average estimated increase of seed cotton per acre was 136 pounds for cotton seed meal; 69 pounds for acid phosphate; and 21 pounds for kainit. On this red land kainit was not profitable in 1911.

Nitrate of soda was nearly as effective as cotton seed meal.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|----------|
| To unfertilized plot | 224 lbs. |
| To acid phosphate plot | 80 lbs. |
| To kainit plot | 104 lbs. |
| To acid phosphate and kainit plot | 134 lbs. |

Average increase with cotton seed meal..... **136 lbs.**

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

| | |
|---|----------|
| To unfertilized plot | 152 lbs. |
| To cotton seed meal plot | 8 lbs. |
| To kainit plot | 42 lbs. |
| To cotton seed meal and kainit plot | 72 lbs. |

Average increase with acid phosphate

69 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|--|----------|
| To unfertilized plot | 92 lbs. |
| To cotton seed meal plot | —28 lbs. |
| To acid phosphate plot | —18 lbs. |
| To cotton seed meal and acid phosphate plot..... | 36 lbs. |

Average increase with kainit

21 lbs.

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|---------|
| To use of 200 pounds kainit | 36 lbs. |
| To use of 100 pounds kainit | 98 lbs. |

Increase from use of cotton seed meal

134 lbs.

Increase from use of nitrate of soda

108 lbs.

Cotton seed meal better by

26 lbs.

MACON COUNTY, 5 MILES WEST OF NOTASULGA.

B. H. MAY.

Gray, sandy, "piney-woods" land.

This land has been cleared for 35 years. The preceding crop was corn. Plot 5 was most damaged by rust.

Every fertilizer and every combination gave a large increase in yield and in profit.

The greatest profit was on Plot 12, where a complete fertilizer containing nitrate of soda afforded a profit of \$18.42 per acre, or 379 per cent on the investment in fertilizers.

The average increase attributable to cotton seed meal was 267 pounds of seed cotton per acre; to acid phosphate 144 pounds of seed cotton per acre; and to kainit 176 pounds.

Nitrate of soda gave a larger yield than did cotton seed meal.

One hundred pounds per acre of kainit was fully as effective as 200 pounds per acre.

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

| | |
|---|----------|
| To unfertilized plot | 508 lbs. |
| To acid phosphate plot | 146 lbs. |
| To kainit plot | 242 lbs. |
| To acid phosphate and kainit plot | 170 lbs. |

Average increase with cotton seed meal..... 267 lbs.

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

| | |
|---|----------|
| To unfertilized plot | 444 lbs. |
| To cotton seed meal plot | 82 lbs. |
| To kainit plot | 61 lbs. |
| To cotton seed meal and kainit plot | -11 lbs. |

Average increase with acid phosphate 144 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|--|----------|
| To unfertilized plot | 453 lbs. |
| To cotton seed meal plot | 87 lbs. |
| To acid phosphate plot | 70 lbs. |
| To cotton seed meal and acid phosphate plot..... | 94 lbs. |

Average increase with kainit 176 lbs.

Increase from use of different quantities of kainit:

To use of 200 pounds kainit 94 lbs.

To use of 100 pounds kainit 112 lbs.

Increase from use of cotton seed meal..... 170 lbs.

Increase from use of nitrate of soda..... 196 lbs.

Nitrate better by 26 lbs.

Experiments at Notasulga and Ft. Davis

| Plot No. | Amount fertilizer per acre | KIND | NOTASULGA | | | FT. DAVIS | | |
|----------|----------------------------|------------------|----------------------------|---------------------------------|------------------------|----------------------------|---------------------------------|------------------------|
| | | | 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 | 632 | 508 | \$13.26 | 720 | —24 | —3.77 |
| 2 | 240 | Acid phosphate | 568 | 444 | 12.53 | 784 | 40 | — .40 |
| 3 | 00 | No fertilizer | 124 | ----- | ----- | 744 | ----- | ----- |
| 4 | 20 | Kainit | 584 | 453 | 13.10 | 816 | 86 | 1.35 |
| 5 | 200 | Cotton seed meal | 728 | 590 | 14.20 | 920 | 204 | 1.85 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal | 840 | 695 | 17.84 | 984 | 282 | 4.62 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 152 | ----- | ----- | 688 | ----- | ----- |
| 8 | 240 | Acid phosphate | 672 | 514 | 13.37 | 968 | 310 | 6.84 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal | 848 | 684 | 15.81 | 1128 | 500 | 9.92 |
| | 240 | Acid phosphate | | | | | | |
| 10 | 200 | Cotton seed meal | 872 | 702 | 17.08 | 1096 | 498 | 10.56 |
| | 240 | Acid phosphate | | | | | | |
| 11 | 100 | Kainit | 176 | ----- | ----- | 568 | ----- | ----- |
| | 000 | No fertilizer | | | | | | |
| 12 | 240 | Acid phosphate | 904 | 728 | 18.42 | 880 | 312 | 5.10 |
| | 100 | Kainit | | | | | | |
| | 100 | Nitrate of soda | | | | | | |

MACON COUNTY, ½ MILE SOUTHWEST OF FT. DAVIS.

F. M. DAVIS.

White sandy "second bottom" soil with yellow clay subsoil.

This land was cleared 50 or 60 years ago. Corn was the preceding crop. The stand of cotton was uniform. Rust was worse on Plots 1, 3, 7, and 11, and least abundant on Plots 12, 6, 9, 10, and 8 in order named. This cotton was injured by hot weather in August and by cotton caterpillars in September.

The complete fertilizers, containing cotton seed meal, were most profitable, affording increased yields of 500 pounds and 498 pounds respectively, per acre; this was a profit of \$9.92 and \$10.56 per acre, or 163 and 181 per cent on the investment in fertilizers. The average increase from cotton seed meal was 133 pounds seed cotton per acre; from acid phosphate 178 pounds of seed cotton; and from kainit 240 pounds of seed cotton per acre. One hundred pounds of kainit was as effective as 200 pounds.

Nitrate of soda applied June 27th, afforded a smaller yield than did an application of cotton seed meal.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|-----------------|
| To unfertilized plot | —24 lbs. |
| To acid phosphate plot | 164 lbs. |
| To kainit plot | 196 lbs. |
| To acid phosphate and kainit plot | 190 lbs. |
| <i>Average increase with cotton seed meal</i> | 133 lbs. |

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

| | |
|---|-----------------|
| To unfertilized plot | 40 lbs. |
| To cotton seed meal plot | 228 lbs. |
| To kainit plot | 224 lbs. |
| To cotton seed meal and kainit plot | 218 lbs. |
| <i>Average increase with acid phosphate</i> | 178 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|--|-----------------|
| To unfertilized plot | 86 lbs. |
| To cotton seed meal plot | 306 lbs. |
| To acid phosphate plot | 270 lbs. |
| To cotton seed meal and acid phosphate plot..... | 296 lbs. |
| <i>Average increase with kainit</i> | 240 lbs. |

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|----------|
| To use of 200 pounds kainit | 296 lbs. |
| To use of 100 pounds kainit | 294 lbs. |

Increase from use of cotton seed meal

Increase from use of nitrate of soda.....

Cotton seed meal better by **186 lbs**

MONROE COUNTY, 2 MILES WEST OF MONROE.

MONROE FARM LAND CO.

Sandy, gravelly loam, yellow clay subsoil.

This land has been cleared for 30 years. The preceding crops were oats and millet. There was no damage from shedding or from rust, but some injury from the cotton caterpillar. The stand was good. All applications of fertilizers were profitable. Plot 10 afforded the greatest profit, \$9.79 per acre, or 180 per cent on the investment in fertilizers. The average estimated increase of seed cotton per acre for cotton seed meal was 182 pounds; 184 pounds for kainit, and 59 pounds for acid phosphate.

Experiment in Monroe County

| 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 .. | 536 | 152 | \$ 1.86 |
| 2 | 240 | Acid phosphate ... | 456 | 72 | .72 |
| 3 | 000 | No fertilizer | 384 | ----- | ----- |
| 4 | 200 | Kainit | 512 | 148 | 4.34 |
| 5 | 200 | Cotton seed meal } .. | 544 | 200 | 1.72 |
| | 240 | Acid phosphate } .. | | | |
| 6 | 200 | Cotton seed meal } .. | 704 | 380 | 7.76 |
| | 200 | Kainit | | | |
| 7 | 000 | No fertilizer | 304 | ----- | ----- |
| 8 | 240 | Acid phosphate } .. | 520 | 214 | 3.77 |
| | 200 | Kainit | | | |
| 9 | 400 | Cotton seed meal } .. | 736 | 428 | 7.62 |
| | 240 | Acid phosphate } .. | | | |
| 10 | 200 | Kainit | 784 | 474 | 9.79 |
| | 200 | Cotton seed meal } .. | | | |
| 11 | 240 | Acid phosphate } .. | 312 | ----- | ----- |
| | 100 | Kainit | | | |
| 12 | 000 | No fertilizer | 608 | 296 | 4.59 |
| | 240 | Acid phosphate } .. | | | |
| | 100 | Nitrate of soda .. | | | |

Increase of seed when cotton seed meal was added:

| | |
|---|----------|
| To unfertilized plot | 152 lbs. |
| To acid phosphate plot | 128 lbs. |
| To kainit plot | 232 lbs. |
| To acid phosphate and kainit plot | 214 lbs. |

Average increase with cotton seed meal 182 lbs.

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

| | |
|---|---------|
| To unfertilized plot | 72 lbs. |
| To cotton seed meal plot | 48 lbs. |
| To kainit plot | 66 lbs. |
| To cotton seed meal and kainit plot | 48 lbs. |

Average increase with acid phosphate 59 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|---|----------|
| To unfertilized plot | 148 lbs. |
| To cotton seed meal plot | 228 lbs. |
| To acid phosphate plot | 132 lbs. |
| To cotton seed meal and acid phosphate plot | 228 lbs. |

Average increase with kainit 184 lbs.

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|----------|
| To use of 200 pounds kainit | 228 lbs. |
| To use of 100 pounds kainit | 274 lbs. |

Increase from use of cotton seed meal 214 lbs.

Increase from use of nitrate of soda 36 lbs.

Cotton seed meal better by 178 lbs.

CLARKE COUNTY, 10 MILES NORTHWEST OF
THOMASVILLE.

T. M. PUGH.

Sandy pine upland with clay subsoil.

The stand was good and uniform. No report was made of insect injury or severe damage by rust or other disease. All complete fertilizers were profitable, but the greatest profit was \$4.69 per acre (Plot 6), or 101 per cent on the investment in fertilizer.

The average increase of seed cotton due to cotton seed meal was 199 pounds per acre; to acid phosphate, only 17 pounds; to kainit, only 49 pounds. Cotton seed meal was superior to nitrate of soda to the extent of 43 pounds of seed cotton per acre. Nitrate of soda, applied June 21st, was slightly better than cotton seed meal.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|----------|
| To unfertilized plot | 232 lbs. |
| To acid phosphate plot | 192 lbs. |
| To kainit plot | 168 lbs. |
| To acid phosphate and kainit plot | 206 lbs. |

Average increase with cotton seed meal 200 lbs.

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

| | |
|---|----------|
| To unfertilized plot | 72 lbs. |
| To cotton seed meal plot | 32 lbs. |
| To kainit plot | —38 lbs. |
| To cotton seed meal and kainit plot | 00 lbs. |

Average increase with acid phosphate 17 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|---|----------|
| To unfertilized plot | 116 lbs. |
| To cotton seed meal plot | 52 lbs. |
| To acid phosphate plot | 6 lbs. |
| To cotton seed meal and acid phosphate plot | 20 lbs. |

Average increase with kainit 49 lbs.

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|---------|
| To use of 200 pounds kainit | 20 lbs. |
| To use of 100 pounds kainit | 18 lbs. |

Increase from use of cotton seed meal

Increase from use of nitrate of soda

Nitrate better by 54 lbs

Experiments in Clarke and Choctaw Counties

| | | | BASHI | | | PUSHMATAHA | | |
|----------|-----------------------------|------------------|----------------------------|---------------------------------|------------------------|----------------------------|---------------------------------|------------------------|
| 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 | 616 | 232 | 4.42 | 528 | 112 | 0.58 |
| 2 | 240 | Acid phosphate | 456 | 72 | .62 | 520 | 104 | 1.70 |
| 3 | 000 | No fertilizer | 384 | --- | --- | 416 | --- | --- |
| 4 | 200 | Kainit | 544 | 116 | 2.31 | 536 | 102 | 1.86 |
| 5 | 200 | Cotton seed meal | 736 | 264 | 3.77 | 856 | 404 | 8.28 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal | 800 | 284 | 4.69 | 696 | 226 | 2.83 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 560 | --- | --- | 488 | --- | --- |
| 8 | 240 | Acid phosphate | 632 | 78 | .58 | 688 | 162 | 2.10 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal | 832 | 284 | 3.01 | 872 | 308 | 3.78 |
| | 240 | Acid phosphate | | | | | | |
| | 200 | Kainit | | | | | | |
| 10 | 200 | Cotton seed meal | 824 | 282 | 3.64 | 952 | 350 | 5.82 |
| | 240 | Acid phosphate | | | | | | |
| | 100 | Kainit | | | | | | |
| 11 | 000 | No fertilizer | 536 | --- | --- | 6 40 | --- | --- |
| 12 | 240 | Acid phosphate | 872 | 336 | 5.87 | 864 | 224 | 2.83 |
| | 100 | Kainit | | | | | | |
| | 100 | Nitrate of soda | | | | | | |

CHOCTAW COUNTY, 20 MILES SOUTH OF CUBA.

D. O. PHILLIPS, PUSHMATAHA.

Dark gray sand with yellow clay subsoil.

This field has been cleared about 50 years. The preceding crop was corn. A mixture of cotton seed meal and acid phosphate (Plot 5) afforded the largest increase (404 pounds of seed cotton). This also gave the largest net profit, \$8.28, or 177 per cent on the investment in fertilizers. In a complete fertilizer 100 pounds of kainit per acre was more profitable than 200 pounds.

The average increase with cotton seed meal was 171 pounds of seed cotton per acre, against 135 pounds from acid phosphate, and an average increase of only 45 pounds from the use

of 200 pounds of kainit. Cotton seed meal was more profitable than nitrate of soda, applied June 13th.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|----------|
| To unfertilized plot | 112 lbs. |
| To acid phosphate plot | 300 lbs. |
| To kainit plot | 124 lbs. |
| To acid phosphate and kainit plot | 146 lbs. |

Average increase with cotton seed meal 171 lbs.

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

| | |
|---|----------|
| To unfertilized plot | 104 lbs. |
| To cotton seed meal plot | 292 lbs. |
| To kainit plot | 60 lbs. |
| To cotton seed meal and kainit plot | 82 lbs. |

Average increase with acid phosphate 135 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|---|----------|
| To unfertilized plot | 102 lbs. |
| To cotton seed meal plot | 114 lbs. |
| To acid phosphate plot | 58 lbs. |
| To cotton seed meal and acid phosphate plot | -96 lbs. |

Average increase with kainit 45 lbs.

Increase from use of different quantities of kainit:

| | |
|-----------------------------------|----------|
| To use of 200 pounds kainit | -96 lbs. |
| To use of 100 pounds kainit | -54 lbs. |

Increase from use of cotton seed meal 146 lbs.

Increase from use of nitrate soda 20 lbs.

Cotton seed meal better by 126 lbs.

WASHINGTON COUNTY, 6 MILES NORTHEAST OF
CARSON.

T. LEE PORTER.

Red upland soil.

This land has been cultivated for about 40 years. The preceding crop was corn. The stand on all plots was poor. This cotton was seriously damaged by the boll weevil and the cotton caterpillar. Portions of Plots 2, 3, 5, 6 and 8 were injured by rust.

This soil needed a complete fertilizer, which in all cases afforded a profit, while all applications of chemicals singly or in pairs were of but slight value.

The average increase attributable to cotton seed meal was 90 pounds of seed cotton; to acid phosphate 94 pounds; and to kainit 118 pounds of seed cotton per acre.

Nitrate of soda applied on July 7th, was practically equal to cotton seed meal.

Increase of seed cotton when cotton seed meal was added:

| | |
|---|----------------|
| To unfertilized plot | 54 lbs. |
| To acid phosphate plot | —30 lbs. |
| To kainit plot | 36 lbs. |
| To acid phosphate and kainit plot | 298 lbs. |
| <i>Average increase with cotton seed meal</i> | 90 lbs. |

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

| | |
|--|----------------|
| To unfertilized plot | 50 lbs. |
| To cotton seed meal plot | —34 lbs. |
| To kainit plot | 49 lbs. |
| To cotton seed meal and kainit plot..... | 311 lbs. |
| <i>Average increase with acid phosphate.....</i> | 94 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|--|-----------------|
| To unfertilized plot | 41 lbs. |
| To cotton seed meal plot | 23 lbs. |
| To acid phosphate plot | 40 lbs. |
| To cotton seed meal and acid phosphate plot..... | 368 lbs. |
| <i>Average increase with kainit</i> | 118 lbs. |

Increase from use of different quantities of kainit:

| | |
|--------------------------------------|----------|
| To use of 200 pounds of kainit | 368 lbs. |
| To use of 100 pounds of kainit | 314 lbs. |

Increase from use of cotton seed meal..... 298 lbs.

Increase from use of nitrate of soda 296 lbs.

Cotton seed meal better by **2 lbs.**

Experiments at Carson and Belleville

| | | | CARSON | | | BELLEVILLE | | |
|----------|-------------------------------|------------------|-------------------------------|------------------------------------|---------------------------|-------------------------------|------------------------------------|------------------------------------|
| Plot No. | Amount ferti- zer per acre | KIND | Yield seed cotton per acre | Increase over unfertilized plot | Profit from fertilizer | Yield seed cotton per acre | Increase over unfertilized plot | Increase over unfertilized plot |
| | Lbs. | | Lbs. | Lbs. | | Lbs. | Lbs. | \$ |
| 1 | 200 | Cotton seed meal | 560 | 54 | —1 27 | 556 | 200 | 3.40 |
| 2 | 240 | Acid phosphate | 556 | 50 | — 08 | 544 | 88 | 1.14 |
| 3 | 000 | No fertilizer | 506 | — | — | 456 | — | — |
| 4 | 200 | Kainit | 582 | 41 | — 09 | 576 | 92 | 1.54 |
| 5 | 200 | Cotton seed meal | 596 | 20 | —4 64 | 632 | 120 | — .84 |
| | 240 | Acid phosphate | | | | | | |
| 6 | 200 | Cotton seed meal | 688 | 77 | —1.94 | 704 | 164 | .85 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 646 | — | — | 568 | — | — |
| 8 | 240 | Acid phosphate | 716 | 90 | — .20 | 800 | 232 | 4.34 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal | 994 | 388 | 6.34 | 840 | 272 | 2.62 |
| | 240 | Acid phosphate | | | | | | |
| 10 | 200 | Cotton seed meal | 920 | 334 | 5.31 | — | — | — |
| | 240 | Acid phosphate | | | | | | |
| 11 | 100 | Kainit | 566 | — | — | — | — | — |
| | 000 | No fertilizer | | | | | | |
| 12 | 240 | Acid phosphate | 898 | 332 | 5.74 | 952 | 384 | 7.41 |
| | 100 | Kainit | | | | | | |
| | 100 | Nitrate of soda | | | | | | |

CONECUH COUNTY, BELLVILLE, 8 MILES EAST OF REPTON.

B. D. ARANT.

Light gray sandy land, yellow clay subsoil.

This land has been in cultivation for 40 or 50 years. The preceding crop was cotton. Some damage was done by cotton wilt on Plot 10; the caterpillar attacked the crop too late to do much damage. The first part of the season was too dry and the latter part too wet.

The largest profit, \$7.41, was afforded by Plot 12 which received a complete fertilizer, including nitrate of soda.

The average increase in seed cotton was 86 pounds with cotton seed meal; 47 pounds with acid phosphate; and 88 pounds with kainit.

Increase of seed cotton when cotton seed meal was added:

| | |
|--|----------|
| To unfertilized plot | 200 lbs. |
| To acid phosphate plot | 32 lbs. |
| To kainit plot | 72 lbs. |
| To acid phosphate and kainit plot | 40 lbs. |
| Average increase with cotton seed meal | 86 lbs. |

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

| | |
|--|----------|
| To unfertilized plot | 88 lbs. |
| To cotton seed meal plot | —80 lbs. |
| To kainit plot | 140 lbs. |
| To cotton seed meal and kainit plot | 40 lbs. |
| Average increase with acid phosphate | 47 lbs. |

Increase of seed cotton per acre when kainit was added:

| | |
|---|----------|
| To unfertilized plot | 92 lbs. |
| To cotton seed meal plot | —36 lbs. |
| To acid phosphate plot | 144 lbs. |
| To cotton seed meal and acid phosphate plot | 152 lbs. |
| Average increase with kainit | 88 lbs. |

MOBILE COUNTY, 6 MILES EAST OF CHUNCHULLA

W. A. MIMS.

Yellow clay loam, red clay subsoil.

The preceding crop was corn. Slight damage was done by rust. There was 90 per cent of a perfect stand. On this land, capable of making about three-fourths of a bale of cotton per acre without fertilizer, every fertilizer and every combination afforded a profitable increase. The largest profit, \$12.02 per acre, or 246 per cent on the investment in fertilizers, was made on Plot 12, which received a complete fertilizer containing nitrate of soda.

The average increase attributable to cotton seed meal was 116 pounds of seed cotton per acre; to acid phosphate 109 pounds; and to kainit 170 pounds. Nitrate of soda was more effective than cotton seed meal.

Experiments at Chunchulla in Mobile County

| Plot No. | Amount ferti- zer per acre | KIND | Yield seed cotton per acre | Increase over unfertilized plot | Profit from fertilizer |
|----------|-------------------------------|-----------------------|-------------------------------|------------------------------------|---------------------------|
| | Lbs. | | Lbs. | Lbs. | |
| 1 | 200 | Cotton seed meal .. | 1128 | 208 | \$ 3.66 |
| 2 | 240 | Acid phosphate | 1024 | 104 | 1.65 |
| 3 | 000 | No fertilizer | 920 | --- | --- |
| 4 | 200 | Kainit | 1280 | 330 | 9.16 |
| 5 | 200 | Cotton seed meal } .. | 1376 | 396 | 7.99 |
| | 240 | Acid phosphate .. | | | |
| 6 | 200 | Cotton seed meal } .. | 1264 | 254 | 3.73 |
| | 200 | Kainit | | | |
| 7 | 000 | No fertilizer | 1040 | --- | --- |
| 8 | 240 | Acid phosphate .. | 1416 | 344 | 7.93 |
| | 200 | Kainit | | | |
| 9 | 200 | Cotton seed meal } .. | 1488 | 384 | 6.21 |
| | 240 | Acid phosphate .. | | | |
| 10 | 200 | Kainit | 1560 | 424 | 8.19 |
| | 240 | Acid phosphate .. | | | |
| 11 | 100 | Kainit | 1168 | --- | --- |
| | 000 | No fertilizer | | | |
| 12 | 240 | Acid phosphate .. | 1696 | 528 | 12.02 |
| | 100 | Kainit | | | |
| | 100 | Nitrate of soda | | | |

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

| | |
|---|-----------|
| To unfertilized plot | 208 lbs. |
| To acid phosphate plot | 292 lbs. |
| To kainit plot | — 76 lbs. |
| To acid phosphate and kainit plot | 40 lbs. |

Average increase with cotton seed meal 116 lbs.

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

| | |
|---|----------|
| To unfertilized plot | 104 lbs. |
| To cotton seed meal plot | 188 lbs. |
| To kainit plot | 14 lbs. |
| To cotton seed meal and kainit plot | 130 lbs. |

Average increase with acid phosphate 109 lbs.

Increase of seed cotton per acre when kainit was added:

| | |
|---|----------|
| To unfertilized plot | 330 lbs. |
| To cotton seed meal plot | 46 lbs. |
| To acid phosphate plot | 240 lbs. |
| To cotton seed meal and acid phosphate plot | —12 lbs. |

Average increase with kainit 170 lbs.

Increase from use of different quantities of kainit:

| | |
|--------------------------------------|----------|
| To use of 200 pounds of kainit | —12 lbs. |
| To use of 100 pounds of kainit | —28 lbs. |
| From use of cotton seed meal | 40 lbs. |
| From use of nitrate of soda | 144 lbs. |
| <i>Nitrate better by</i> | 104 lbs |

INCONCLUSIVE EXPERIMENTS

All the experiments recorded in the remaining pages of this bulletin were inconclusive, and hence are very briefly presented.

J. M. Alexander, at Felix, PERRY COUNTY, made a fertilizer experiment on light sandy soil with yellow clay subsoil. This proved inconclusive probably because of having only two rows per plot. However, the yields are published on page 288.

In DALLAS COUNTY, M. F. Smith, at Marion Junction, made a fertilizer experiment on prairie land. No report of yields of the separate plots was received.

In HENRY COUNTY, R. L. Williams, 3 miles northwest of Columbia, conducted a fertilizer experiment with cotton. However, his results cannot be compared with others because he did not follow instructions but applied all fertilizers at $2\frac{1}{2}$ times the rate intended. The yields are shown on page 288.

RUSSELL COUNTY, 6 MILES EAST OF SEALE.

J. B. BILLUPS.

Gray sandy loam with light yellow subsoil.

This land has been continuously in cotton for the past 28 years. Cotton wilt so reduced the stand on Plots 2, 9, and 10 as to make the experiment inconclusive. See page 290.

MONROE COUNTY, 12 MILES WEST OF REPTON.

A. L. HARRISON.

Red pine land.

This experiment was inconclusive by reason of greater fertility of that part of the field adjacent to Plot 11. See p. 290. However, at least this conclusion may be safely drawn, namely, that acid phosphate was highly profitable on this land.

Inconclusive fertilizer experiments at Felix, Columbia and Letohatchie

| Plot No. | Amount fertilizer per acre | KIND | FELIX | | COLUMBIA | | LETOHATCHIE | |
|----------|----------------------------|-----------------------|----------------------------|---------------------------------|----------------------------|---------------------------------|----------------------------|---------------------------------|
| | | | 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 |
| 1 | Lbs. 200 | Cotton seed meal .. | Lbs. 880 | Lbs. 216 | Lbs. 700 | Lbs. 100 | Lbs. 752 | Lbs. 168 |
| 2 | 240 | Acid phosphate | 624 | —40 | 660 | 60 | 624 | 40 |
| 3 | 000 | No fertilizer | 664 | ----- | 600 | ----- | 584 | ----- |
| 4 | 200 | Kainit | 392 | —204 | 600 | 25 | 872 | 234 |
| 5 | 200 | Cotton seed meal } .. | 608 | 88 | 800 | 250 | 960 | 268 |
| | 240 | Acid phosphate } .. | | | | | | |
| 6 | 200 | Cotton seed meal } .. | 912 | 464 | 860 | 335 | 1056 | 310 |
| | 200 | Kainit | | | | | | |
| 7 | 000 | No fertilizer | 376 | ----- | 500 | ----- | 800 | ----- |
| 8 | 240 | Acid phosphate .. | 480 | 84 | 800 | 295 | 1192 | 488 |
| | 200 | Kainit | | | | | | |
| 9 | 200 | Cotton seed meal } .. | 704 | 288 | 1080 | 570 | 1232 | 624 |
| | 240 | Acid phosphate .. | | | | | | |
| 10 | 200 | Kainit | 784 | 348 | 1420 | 905 | 952 | 440 |
| | 100 | Cotton seed meal } .. | | | | | | |
| 11 | 000 | No fertilizer | 456 | ----- | 520 | ----- | 416 | ----- |
| 12 | 240 | Acid phosphate .. | 952 | 496 | 1060 | 540 | 504 | 88 |
| | 100 | Kainit | | | | | | |
| | 100 | Nitrate of soda .. | | | | | | |

CLARKE COUNTY, 8 MILES WEST OF WHATLEY.

J. W. CALHOUN.

Gray sandy upland with clay subsoil.

This field had been cleared 5 years. The original forest trees were oak and long leaf pine. The preceding crop was cotton. All plots were damaged by a severe windstorm in August. The results are inconclusive, partly because of variations in the fertility of different plots, and possibly because of unequal damage to the different plots by the storm. See page 290.

In PIKE COUNTY, near Brundidge, J. N. Colley conducted an experiment which was damaged so much by wilt and rust that no conclusion can be drawn. Hence the figures are not published.

LOWNDES COUNTY, $\frac{1}{4}$ MILE SOUTH OF LETO-
HATCHIE.

J. B. MITCHELL, JR.

Black prairie upland with reddish subsoil.

The best yields were obtained from complete fertilizer, giving a profit of \$13.99 per acre, or 230 per cent on the investment in fertilizer. See page 288.

The land was so variable in fertility (see yields of Plots 3, 7 and 11) that no positive conclusions can be drawn. However, the indications are that kainit and cotton seed meal, each alone and in combination, was profitable, and that probably acid phosphate was helpful when used in a complete fertilizer.

In BARBOUR COUNTY, J. A. Richards, at Louisville, conducted a fertilizer experiment but the crop was ruined by wilt and by a hail storm on the 30th of June.

CRENSHAW COUNTY, 1 MILE EAST OF LUVERNE.

F. L. HAWKINS.

Gray sandy upland ; red clay subsoil.

This cotton was grown on land that had been cleared for about 55 years. There was no damage from plant disease or from insects. This experiment was inconclusive because the land was not uniform in fertility. See page 290.

BULLOCK COUNTY, 1 MILE EAST OF INVERNESS

R. F. Hooks conducted an experiment on gray soil with yellow subsoil, which proved inconclusive because of a defective stand on certain plots. See page 290.

In BULLOCK COUNTY, $2\frac{1}{2}$ miles south of Union Springs, E. H. Cope conducted an experiment. However, the results are inconclusive because the different plots were not uniform in fertility. See page 290.

Inconclusive fertilizer experiments at Luverne, Inverness, Union Springs, Seale, Repton and Whatley

| | | LUVERNE | | INVERNESS | | UNION SPRINGS | | SEALE | | REPTON | | WHATLEY | | |
|----------|----------------------------|---------------------|---|-----------|---------------------------------|---------------|----------------------------|-------|---------------------------------|--------|----------------------------|---------|---------------------------------|-----|
| Plot No. | Amount fertilizer per acre | KIND | Yield seed cotton ⁿ 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. | | |
| 1 | 200 | Cotton seed meal .. | 824 | 392 | --- | --- | 968 | 232 | 754 | 390 | 920 | 80 | 864 | 104 |
| 2 | 240 | Acid phosphate..... | 712 | 280 | --- | --- | 880 | 144 | 460 | 96 | 1040 | 200 | 888 | 128 |
| 3 | 000 | No fertilizer..... | 432 | --- | 656 | --- | 736 | --- | 364 | --- | 840 | --- | 760 | --- |
| 4 | 200 | Kainit..... | 592 | 52 | 784 | 186 | 728 | 10 | 436 | 67 | 1000 | 180 | 840 | 42 |
| 5 | 200 | Cotton seed meal | 904 | 256 | 824 | 284 | 912 | 212 | 472 | 98 | 1200 | 400 | 992 | 156 |
| | 240 | Acid phosphate.. | | | | | | | | | | | | |
| 6 | 200 | Cotton seed meal | 928 | 172 | 744 | 262 | 816 | 134 | 584 | 205 | 960 | 180 | 1120 | 246 |
| | 200 | Kainit..... | | | | | | | | | | | | |
| 7 | 000 | No fertilizer..... | 864 | --- | 424 | --- | 664 | --- | 384 | --- | 760 | --- | 912 | --- |
| 8 | 240 | Acid phosphate.. | 840 | 12 | 760 | 352 | 616 | 168 | 536 | 150 | 1120 | 290 | 1008 | 110 |
| | 200 | Kainit..... | | | | | | | | | | | | |
| 9 | 200 | Cotton seed meal | 952 | 112 | 760 | 368 | 736 | 48 | 696 | 308 | 1200 | 300 | 992 | 108 |
| | 240 | Acid phosphate.. | | | | | | | | | | | | |
| 10 | 200 | Cotton seed meal | 848 | 20 | 608 | 232 | 816 | 32 | 768 | 378 | 1160 | 190 | 1024 | 154 |
| | 240 | Acid phosphate.. | | | | | | | | | | | | |
| 11 | 100 | Kainit..... | 816 | --- | 360 | --- | 784 | --- | 392 | --- | 1040 | --- | 856 | --- |
| | 000 | No fertilizer..... | | | | | | | | | | | | |
| 12 | 240 | Acid phosphate.. | 1048 | 233 | 872 | 512 | 904 | 120 | 704 | 312 | 1160 | 120 | 1040 | 184 |
| | 100 | Kainit..... | | | | | | | | | | | | |
| | 100 | Nitrate of soda .. | | | | | | | | | | | | |

GENEVA COUNTY, 2 MILES NORTH OF SLOCOMB.

J. G. LEWIS.

Gray, "piney-woods" sandy loam, with yellow clay subsoil.

This land has been cleared for 7 years. The preceding crop was corn. The stand was good, except plot 7. There was no damage reported from rust or insect attacks. By error the plots were made smaller and the rate of fertilization higher than directed. Hence the results from this experiment cannot well be compared with those from other experiments.

All of the fertilizers were profitable. The largest increase in yield was made on plot 10, which showed a profit of \$13.03 per acre, or 161 per cent on the investment in fertilizers. The highest yield from the fertilizer applied singly was acid phosphate \$7.12 per acre, or 263 per cent on the investment in fertilizers. The average estimated increase of seed cotton per acre, due to the use of cotton seed meal was 206 pounds; to acid phosphate 150 pounds; and to kainit 22 pounds.

Nitrate of soda was applied June 6th.

Experiment at Slocomb in Geneva County.

| Plot No. | Amount fertilizer per acre | KIND | Yield seed cotton per acre | Increase over unfertilized plot | Profit from fertilizer |
|----------|----------------------------|---------------------|----------------------------|---------------------------------|------------------------|
| | Lbs. | | Lbs. | Lbs. | |
| 1 | 325 | Cotton seed meal .. | 1179 | 307 | \$ 4.96 |
| 2 | 385 | Acid phosphate.... | 1149 | 307 | 7.12 |
| 3 | 000 | No fertilizer..... | 872 | --- | --- |
| 4 | 325 | Kainit | 1051 | 179 | 3.48 |
| 5 | 325 | Cotton seed meal } | 1346 | 474 | 7.61 |
| | 385 | Acid phosphate.. } | | | |
| 6 | 325 | Cotton seed meal } | 1218 | 346 | 3.93 |
| | 325 | Kainit | | | |
| 7 | 000 | No fertilizer..... | 872 | --- | --- |
| 8 | 385 | Acid phosphate.. } | 1103 | 234 | 2.51 |
| | 325 | Kainit | | | |
| | 325 | Cotton seed meal } | | | |
| 9 | 385 | Acid phosphate.. } | 1282 | 416 | 3.47 |
| | 325 | Kainit | | | |
| | 325 | Cotton seed meal } | | | |
| 10 | 385 | Acid phosphate.. } | 1538 | 676 | 13.03 |
| | 163 | Kainit | | | |
| 11 | 000 | No fertilizer..... | 859 | --- | --- |
| 12 | 385 | Acid phosphate.. } | 1513 | 654 | 13.01 |
| | 163 | Kainit | | | |
| | 163 | Nitrate of soda.. | | | |

| | |
|---|-----------------|
| Increase of seed cotton per acre when cotton seed meal was added: | |
| To unfertilized plot | 307 lbs. |
| To acid phosphate plot | 167 lbs. |
| To kainit plot | 167 lbs. |
| To acid phosphate and kainit plot | 182 lbs. |
| <i>Average increase with cotton seed meal</i> | 206 lbs. |
| Increase of seed cotton per acre when acid phosphate was added: | |
| To unfertilized plot | 307 lbs. |
| To cotton seed meal plot | 167 lbs. |
| To kainit plot | 55 lbs. |
| To cotton seed meal and kainit plot | 70 lbs. |
| <i>Average increase with acid phosphate</i> | 150 lbs. |
| Increase of seed cotton per acre when kainit was added: | |
| To unfertilized plot | 179 lbs. |
| To cotton seed meal plot | 39 lbs. |
| To acid phosphate plot | — 73 lbs. |
| To cotton seed meal and acid phosphate plot | — 58 lbs. |
| <i>Average increase with kainit</i> | 22 lbs. |
| Increase from use of different quantities of kainit: | |
| To use of 200 pounds of kainit | 58 lbs. |
| To use of 100 pounds of kainit | 202 lbs. |
| Increase from use of cotton seed meal..... | 182 lbs. |
| Increase from use of nitrate of soda | 160 lbs. |
| <i>Cotton seed meal better by</i> | 22 lbs |

DALE COUNTY, 1 MILE SOUTH OF PINCKARD.

T. W. BARRINEAU.

Light clay loam with red clay subsoil.

This land has been in cultivation for 40 years. The preceding crop was corn. There was no damage from rust or insects. The plots of this experiment were not full size being only .115 of an acre each, instead of $\frac{1}{8}$ acre as was intended, thus making the rate of fertilization higher than it should have been on the ordinary plots. The experiment is inconclusive because of wilt on plots 9 and 10 and because plots 1 and 12 were apparently more fertile than the others.

Inconclusive experiment at Pinckard

| Plot No. | Amount fertilizer per acre | KIND | Yield seed cotton per acre | Increase over unfertilized plot |
|----------|----------------------------|--------------------|----------------------------|---------------------------------|
| | Lbs. | | Lbs. | Lbs. |
| 1 | 217 | Cotton seed meal.. | 1018 | 348 |
| 2 | 260 | Acid Phosphate... | 600 | —70 |
| 3 | 000 | No fertilizer..... | 670 | — |
| 4 | 217 | Kainit..... | 626 | —18 |
| 5 | 217 | Cotton seed meal | 1043 | 426 |
| | 260 | Acid Phosphate.. | | |
| 6 | 217 | Cotton seed meal | 765 | 174 |
| | 217 | Kainit..... | | |
| 7 | 000 | No fertilizer..... | 564 | — |
| 8 | 260 | Acid Phosphate.. | 1096 | 532 |
| | 217 | Kainit..... | | |
| 9 | 217 | Cotton seed meal | 1200 | 636 |
| | 260 | Acid Phosphate.. | | |
| | 217 | Kainit..... | | |
| 10 | 217 | Cotton seed meal | 1043 | 478 |
| | 260 | Acid Phosphate.. | | |
| | 108 | Kainit..... | | |
| 11 | 000 | No fertilizer..... | 565 | — |
| | 260 | Acid Phosphate.. | | |
| | 108 | Kainit..... | | |
| 12 | 108 | Kainit..... | 1443 | 878 |
| | 108 | Nitrate of soda.. | | |

HENRY COUNTY, 1 1-4 MILES NORTHWEST OF
HEADLAND.

J. T. KNOWLES.

Dark clay loam with red clay subsoil.

This land has been cleared for ten years. The yields were so irregular that no conclusion could be drawn. This was probably due to having the plots too narrow; moreover, the plots were too small, being only .093 of an acre, making the fertilization heavier than was intended. The figures are not published.

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

J. W. JONES.

Gray sandy loam, yellow clay subsoil.

This land has been cultivated for about 5 years. Irregularity in the stand on the different plots and injury by caterpillars rendered this experiment inconclusive.

(For yields, etc., see page 296.)

ESCAMBIA COUNTY, 2 MILES NORTH OF BREW-
TON.

G. W. BROWN.

Gray sandy upland with yellow clay subsoil.

This land has been cultivated for about 5 years. The preceding crop was corn. There was no damage from rust. A heavy rain and wind about July 20th did considerable damage. This cotton was seriously damaged in August by the caterpillar. There was a uniform stand. See page 296.

Nitrate of soda was applied June 27th.

CRENSHAW COUNTY, 1-2 MILE NORTH OF BRANT-
LEY.

J. W. ELLIS.

Gray sandy loam, yellow clay subsoil.

This land, already rich, has been cultivated for 22 years. The preceding crop was corn. The results are inconclusive. See page 296.

HENRY COUNTY, 5 MILES WEST OF HEADLAND.

R. W. WARD.

Gray loam with red clay subsoil.

This land has been in cultivation for 17 years. The preceding crop was cotton. This experiment was inconclusive

because of failure to make the last picking and because the plots were too narrow.

The chief need of this soil was phosphate, which gave a profit when used alone of \$3.70 per acre or 280 per cent on the investment in fertilizer. See page 296.

COVINGTON COUNTY, 2 MILES EAST OF ANDALUSIA.

W. E. BAGLEY.

Sandy loam with stiff clay subsoil.

This land has been cleared for about 35 years. The preceding crop was sorghum. The results are inconclusive except in showing that cotton seed meal was uniformly effective. See page 296.

COVINGTON COUNTY, 1-2 MILE SOUTH OF OPP.

W. A. MALOY.

This experiment was inconclusive by the failure of the experimenter to carry out the written plan, which called for three unfertilized plots, so as to determine whether the different parts of the field were uniform in fertility. The figures are not published.

In GREENE COUNTY, 15 miles South of Eutaw, W. W. Morgan made a fertilizer experiment with cotton. The results were inconclusive, and are not published.

Inconclusive fertilizer experiments at Atmore, Brewton, Brantley, Headland, Andalusia

| | | | <i>Atmore</i> | | <i>Brewton</i> | | <i>Brantley</i> | | <i>Headland</i> <i>I picking only</i> | | <i>Andalusia</i> | |
|----------|----------------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--|-------------------|-------------------|-------------------|
| Plot No. | Amount fertilizer per acre | KIND | Yield seed cotton | Increase over | Yield seed cotton | Increase over | Yield seed cotton | Increase over | Yield seed cotton | Increase over | Yield seed cotton | Increase over |
| | | | per acre | unfertilized plot | per acre | unfertilized plot | per acre | unfertilized plot | per acre | unfertilized plot | per acre | unfertilized plot |
| 1 | Lbs. 200 | Cotton seed meal | 1060 | 504 | 720 | 88 | 1608 | 480 | 296 | 56 | 632 | 192 |
| 2 | 240 | Acid phosphate | 728 | 168 | 696 | 64 | 1104 | -24 | 408 | 168 | 536 | 96 |
| 3 | 000 | No fertilizer | 560 | --- | 632 | --- | 1128 | --- | 240 | --- | 440 | --- |
| 4 | 200 | Kainit | 648 | 96 | 816 | 194 | 1312 | 200 | 224 | -16 | 608 | 126 |
| 5 | 200 | Cotton seed meal | 648 | 104 | 656 | 34 | 1248 | 152 | 408 | 168 | 768 | 244 |
| | 240 | Acid phosphate | | | | | | | | | | |
| 6 | 200 | Cotton seed meal | 648 | 112 | 696 | 94 | 1384 | 304 | 296 | 56 | 760 | 194 |
| | 200 | Kainit | | | | | | | | | | |
| 7 | 000 | No fertilizer | 528 | --- | 592 | --- | 1064 | --- | 240 | --- | 608 | --- |
| 8 | 240 | Acid phosphate | 712 | 190 | 696 | 92 | 1176 | 92 | 368 | 132 | 552 | -38 |
| | 200 | Kainit | | | | | | | | | | |
| 9 | 200 | Cotton seed meal | 752 | 236 | 864 | 248 | 1192 | 88 | 448 | 216 | 752 | 180 |
| | 240 | Acid phosphate | | | | | | | | | | |
| | 200 | Kainit | | | | | | | | | | |
| 10 | 200 | Cotton seed meal | 704 | 194 | 816 | 188 | 1160 | 36 | 464 | 236 | 792 | 238 |
| | 240 | Acid phosphate | | | | | | | | | | |
| | 100 | Kainit | | | | | | | | | | |
| 11 | 000 | No fertilizer | 504 | --- | 640 | --- | 1144 | --- | 224 | --- | 536 | --- |
| | 240 | Acid phosphate | 752 | 248 | 840 | 200 | 1288 | 144 | 432 | 208 | 736 | 200 |
| 100 | Kainit | | | | | | | | | | | |
| 12 | 100 | Nitrate of soda | | | | | | | | | | |