

## The Effect of "Digging" and "Hogging" Peanuts on Cotton Yields<sup>1</sup>

**M**ANY ACRES of land in Alabama are being depleted of their fertility by harvesting peanuts too often from the same area. This situation can be remedied to a great extent by the proper rotation and fertilization of crops.

In 1932, an experiment was started at the Wiregrass Experiment Station to study various cropping systems involving cotton, peanuts, and corn. The kind of cropping system used and the results obtained are shown better by the following photographs and legends than they can be described in words. Notice the effect of harvested peanuts and "hogged" peanuts on the cotton crop which followed. The photographs were made September 16, 1939. All of these pictures are of cotton on the same kind of land but in different cropping and fertilizer programs. Each of the pictures and the results under each should be carefully studied and compared with the others if the reader is to get the valuable lesson that these pictures teach.

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<sup>1</sup>The experiments were conducted at the Wiregrass Substation by J. P. Wilson.

**AGRICULTURAL EXPERIMENT STATION**  
**OF THE**  
**ALABAMA POLYTECHNIC INSTITUTE**

**M. J. FUNCHES, Director**  
**AUBURN**



FIGURE 1.—Cotton after seven years of harvested peanuts. The peanuts were unfertilized; the cotton received 600 pounds per acre of a 6-8-8 fertilizer in 1939.

The yield records for this plot are as follows:

<i>Year</i>	<i>Crops</i>	<i>Yield (Lbs. per acre)</i>
1932	Peanuts harvested	1,852
1933	Peanuts harvested	1,212
1934	Peanuts harvested	1,938
1935	Peanuts harvested	1,395
1936	Peanuts harvested	2,173
1937	Peanuts harvested	1,518
1938	Peanuts harvested	1,066
1939	Seed cotton	345

Seven crops of peanuts removed from the land injured it to such an extent that cotton considered to be well fertilized produced only 345 pounds per acre. Note the declining peanut yields in 1937.



FIGURE 2.—Continuous cotton fertilized with 600 pounds per acre of a 6-8-4. Under this condition, four per cent potash in the fertilizer seems to be sufficient.

The cotton yields for this plot are as follows:

<i>Year</i>	<i>Seed cotton (Lbs. per acre)</i>
1932	731
1933	1,406
1934	945
1935	1,436
1936	1,366
1937	2,063
1938	1,154
1939	1,269

**Compare with Figures 1 and 3.**



FIGURE 3.—Cotton in a two-year rotation with “hogged” peanuts. The cotton received 600 pounds per acre of 6-8-4 *until 1939*; peanuts received no fertilizer. In 1939, the cotton received 600 pounds per acre of 0-8-4.

Under these conditions, four per cent potash in the fertilizer appears to be sufficient.

The yields for this plot are as follows:

<i>Year</i>	<i>Crops</i>	<i>Yield (Lbs. per acre)</i>
1932	Peanuts	1,531
1933	Cotton	1,503
1934	Peanuts	2,113
1935	Cotton	1,492
1936	Peanuts	2,404
1937	Cotton	1,933
1938	Peanuts	2,419
1939	Cotton	1,174

Note the high yields of cotton and peanuts. In 1939, cotton without commercial nitrogen produced almost as much as that shown in Figure 2, which received 600 pounds per acre of 6-8-4. The peanut yields are high as compared with those shown in Figure 1.



FIGURE 4.—Cotton in a two-year rotation with corn. Cotton fertilized with 600 pounds per acre of 6-8-4. Corn unfertilized.

The yields for this plot are as follows:

<i>Year</i>	<i>Crops</i>	<i>Yields</i> <i>(Bus. or Lbs. per acre)</i>
1932	Corn	29.8
1933	Cotton	1,764
1934	Corn	31.7
1935	Cotton	1,656
1936	Corn	18.1
1937	Cotton	1,991
1938	Corn	27.5
1939	Cotton	1,201

By comparing these results with those shown in Figure 3, it will be seen that "hogged" peanuts produced approximately the same yield of cotton in 1939 as was produced by 36 pounds of nitrogen. These results should also be compared with those shown in Figure 5.



FIGURE 5.—Cotton in a three-year rotation of corn, cotton, and harvested peanuts. The corn and peanuts were unfertilized; the cotton was fertilized with 6-8-4 at the rate of 600 pounds per acre. This treatment was identical with that shown in Figure 6 until 1939, when this continued to get 4 per cent potash while the cotton shown in Figure 6 received 12 per cent potash.

The yields from this plot are as follows:

<i>Year</i>	<i>Crops</i>	<i>Yield</i> ( <i>Bus. or Lbs. per acre</i> )
1932	Corn	26.6
1933	Cotton	1,699
1934	Peanuts	1,943 (harvested)
1935	Corn	40.2 <sup>1</sup>
1936	Cotton	1,368
1937	Peanuts	2,197 (harvested)
1938	Corn	32.1
1939	Cotton	652

<sup>1</sup> 5,881 pounds per acre of vetch preceding the 1935 corn.

Two crops of harvested peanuts during the seven-year period injured the land to such an extent that 600 pounds of 6-8-4 produced only 652 pounds of seed cotton per acre, which is a little more than half as much as was produced by the treatment shown on the preceding page. Compare with Figure 6.



FIGURE 6.—Cotton in a three-year rotation of corn, cotton, and harvested peanuts. The corn and peanuts were unfertilized; the cotton received 6-8-4 in 1933-36 and 6-8-12 in 1939 at the rates of 600 pounds per acre.

The yields from this plot are as follows:

<i>Year</i>	<i>Crops</i>	<i>Yield</i> ( <i>Bus. or Lbs. per acre</i> )
1932	Corn	27.7
1933	Cotton	1,622
1934	Peanuts	1,960 (harvested)
1935	Corn	31.3
1936	Cotton	1,298 .
1937	Peanuts	2,514 (harvested)
1938	Corn	29.2
1939	Cotton	1,075

The injurious effect of two harvested crops of peanuts during the seven-year period was overcome to a great extent by the use of 600 pounds per acre of a 6-8-12 fertilizer (compare with Figure 5).

In 1939, the cotton received 12 instead of 4 per cent potash in the fertilizer and produced 423 pounds per acre of seed cotton more than was produced by the 4 per cent potash (compare with Figure 5).

The photographs and yield records in this leaflet show that—

1. Harvesting peanuts for several successive years from a field ruined the land for cotton production to such an extent that a good cotton fertilizer (6-8-4 or 6-8-8) used at the rate of 600 pounds per acre did not produce a satisfactory cotton crop.

2. Peanuts “hogged off” increased the yield of the following cotton crop almost as much as 36 pounds of commercial nitrogen.

3. A satisfactory cotton yield was not obtained by an application of 600 pounds per acre of a 6-8-4 when the cotton was grown in a three-year rotation of corn, cotton, and harvested peanuts. Only two crops of peanuts were harvested from the area during the seven-year period.

4. A satisfactory cotton yield was obtained by an application of 600 pounds per acre of a 6-8-12 when the cotton was grown in a three-year rotation of corn, cotton, and harvested peanuts.

5. As far as the fertility of the land is concerned, peanuts should be harvested from a field as seldom as possible and “hogged off” as often as possible.

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