Pathological work was begun on breeding and selection for resistance to root-knot and black shank, the most serious afflictions of shade tobacco. An isolated soil was infested with nematodes and infested with black shank for studies of control methods.

REPORT OF FIELD STATIONS IN McINTOSH COUNTY

The field stations are so located as to deal with the more productive soil types in the county. Experiments are conducted in cooperation with farm owners.

There are two distinct classes of soils in McIntosh County: First, the delta islands which are composed of alluvial soils known as Altamaha clay; and, second, the upland types composed of sands, sandy loams, and clay loams. In this second group only the better drained soils are used for experimental purposes.

Tests on the delta soils are confined to various phases of lettuce production. Experiments on the upland soils are conducted with several truck crops that have shown commercial possibilities. Included in the list of tests are planting dates, variety trials, fertilizer formula tests, and rates of applying fertilizers.

An outline and discussion of work at the field stations follow:

FIELD STATION A.

Soil Type: Bladen Sandy Loam
The tests in progress at "Field Station A" are:
1. Vegetable—Variety Trials
2. Vegetable—Planting Dates
3. English Pea—Fertilizer Formula Test

Vegetable Variety Trials: Several varieties of each vegetable are being tried to determine those best adapted for commercial planting and for home use. Listed below are the varieties that are showing to best advantage:

WINTER VEGETABLES

<table>
<thead>
<tr>
<th>Broccoli:</th>
<th>Mustard:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Sprouting</td>
<td>Tendergreen</td>
</tr>
<tr>
<td>Cabbage:</td>
<td>Giant Green Curled</td>
</tr>
<tr>
<td>Copenhagen Market</td>
<td>Radish:</td>
</tr>
<tr>
<td>Charleston Wakefield</td>
<td>Early Scarlet Globe</td>
</tr>
<tr>
<td>Carrot:</td>
<td>Rape:</td>
</tr>
<tr>
<td>Chantenay</td>
<td>Dwarf Essex</td>
</tr>
<tr>
<td>Oxheart</td>
<td>Rutabaga:</td>
</tr>
<tr>
<td>English Peas:</td>
<td>Improved American</td>
</tr>
<tr>
<td>Improved Telephone</td>
<td>Spinach:</td>
</tr>
<tr>
<td>Thomas Laxton</td>
<td>Bloomsdale</td>
</tr>
<tr>
<td>Kale:</td>
<td>Aragon</td>
</tr>
<tr>
<td>Early Green Curled</td>
<td>Turnips:</td>
</tr>
<tr>
<td>Lettuce:</td>
<td>Purple Top</td>
</tr>
<tr>
<td>Imperial 847</td>
<td>Shogoin (best for summer use)</td>
</tr>
<tr>
<td>Imperial 615</td>
<td>White Egg</td>
</tr>
<tr>
<td>Imperial 515</td>
<td></td>
</tr>
</tbody>
</table>
SUMMER VEGETABLES

Beans (Lima):
   Henderson Bush
   Jackson Wonder

Beans (Snap):
   Giant Stringless Green Pod
   Bountiful

Corn (Roasting Ear):
   Trucker’s Favorite
   Golden Bantam
   Hastings’ Early Market

Cucumber:
   White Spine

Okra:
   White Velvet

Tomatoes:
   Marglobe
   Livingston Globe
   Gulf States Market
   Pritchard

Vegetable—Planting Dates: Plantings of the various vegetable varieties are made throughout the growing season to determine the best time to seed for the crop to reach maturity when market conditions are most favorable. Since these studies are conducted in cooperation with farmers and on their own farms, stress is placed on a succession of plantings to have a continuous supply of vegetables for home use.

This work has been conducted for several years. The following observations have been made concerning vegetables showing commercial importance on both delta and upland soils:

1. Planting Dates on Delta Soils: Lettuce seeded in the field November 10 to 20 reaches maturity in late March and early April when there is practically no other high quality lettuce on the market. This crop has a very definite place in the agricultural program of the delta islands of Coastal Georgia.

Fall cabbage transplanted to the field September 15 matures on the delta soils in January when market conditions normally are favorable. Spring cabbage transplanted in early February matures after the bulk of the Florida crop has been marketed and usually finds a ready market.

Carrots seeded November 1 to 15 mature in late March and April when market conditions are favorable.

2. Planting Dates on Upland Soils: Lettuce seeded October 10 to 20 matures at about the same time as that seeded a month later on the delta.

Cabbage transplanted February 1 to 15 usually finds favorable market conditions.

Onions should be seeded in rows October 1 to 15. If plants are used they should be transplanted in November.

Snap beans should be planted in late February and early March for a spring crop. A summer crop seeded in early July ordinarily finds a ready market in August.

Tomatoes transplanted in early March usually can be marketed to better advantage than later spring plantings.

Broccoli can be successfully transplanted February 15 for a spring crop.

English peas seeded February 10 normally will show cash returns on upland soils of Coastal Georgia.
English Pea—Fertilizer Formula Test: This is the first season a fertilizer experiment has been conducted with peas, therefore no recommendations can yet be made. Yields were good considering the unusually dry weather during the growing period.

FIELD STATION B

Soil Type: Eulonia Fine Sandy Loam

The following projects are in progress at “Field Station B”.

1. Vegetable—Variety Trials
2. Vegetable—Planting Dates
3. Onion—Variety Trials
4. Cabbage—Variety Trials
5. English Pea—Fertilizer Formula Test

Vegetable—Variety Trials and Planting Dates at “Field Station B” are the same as those discussed under “Field Station A”.

Onion—Variety Trials: The varieties included in this study are Yellow Bermuda, White Bermuda, Sweet Spanish, Prizetaker, Large Red Wethersfield, Bloomsdale Extra Early Pearl, Yellow Globe Danvers, Ebenezer or Japanese, Southport Yellow Globe, and Australian Brown. Yellow Bermuda, Australian Brown and Prizetaker are showing to best advantage thus far.

Cabbage—Variety Trials: Since the Southern markets prefer round type cabbage to the pointed types, all the varieties used are round with the exception of Charleston Wakefield. The varieties used are Charleston Wakefield, All Season, Flat Dutch, Copenhagen Market, Golden Acre, Marion Market, Wisconsin All Season, Wisconsin Hollander, All Head, and Early Flat Dutch. Of the round types, Copenhagen Market has proven most satisfactory.

English Pea—Fertilizer Formula Test: This test is of only one season’s duration and insufficient data are at hand to justify fertilizer recommendations. It will be continued for further study.

FIELD STATION C

Soil Type: Eulonia Fine Sandy Loam

At “Field Station C” the following tests are in progress.

1. Vegetable—Variety Trials
2. Vegetable—Planting Dates
3. Irish Potato—Rates of Applying Fertilizer

Vegetable—Variety Trials and Planting Dates at “Field Station C” are the same as those at “Field Station A”.

Irish Potato—Rates of Applying Fertilizer: In this study a complete fertilizer was applied at varying rates from 500 to 2500 pounds to the acre. This is the first year fertilizer work has been done with this crop and it is not felt that a fertilizer recommendation is yet justified.
FIELD STATION D

Soil Type: Altamaha Clay

The following tests are in progress at "Field Station D".
1. Lettuce—Variety Trials
2. Lettuce—Fertilizer Formula Test
3. Lettuce—Rates of Applying Fertilizer
4. Lettuce—Sources of Ammonia
5. Lettuce—Sources of Potash

Lettuce—Variety Trials: All the varieties used in this test are Iceberg selections or strains. They are Imperial F, Imperial 847, Imperial D, Imperial 615, Imperial 515, Imperial 13, and Imperial 152.

All the selections produced marketable heads with the exception of Imperial 13. Imperial 847, Imperial 615, and Imperial 515, appeared to be superior even to Imperial F which has been used in commercial plantings for the last few years. Imperial 847 was the most outstanding. These three selections were planted on areas of several acres each on Butler Island and in each case a larger percentage of the heads was marketable than of Imperial F.

Lettuce—Fertilizer Formula Test: Results from a six-year study of the plant food requirements of lettuce on the delta soils indicate that a

<table>
<thead>
<tr>
<th>FERTILIZER FORMULA*</th>
<th>Total Yield in Heads per Acre</th>
<th>Days Required to Mature</th>
<th>Days Bearing Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphoric Acid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Series 6-4-6</td>
<td>3.29-6-6</td>
<td>8,925</td>
<td>131</td>
</tr>
<tr>
<td>Series 8-4-6</td>
<td>3.29-8-6</td>
<td>10,663</td>
<td>131</td>
</tr>
<tr>
<td>Series 10-4-6</td>
<td>3.29-10-6</td>
<td>12,338</td>
<td>131</td>
</tr>
<tr>
<td>Check (No fertilizer)</td>
<td></td>
<td>6,772</td>
<td>131</td>
</tr>
<tr>
<td>Ammonia Series:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-2-6</td>
<td>1.65-8-6</td>
<td>12,664</td>
<td>131</td>
</tr>
<tr>
<td>8-4-6</td>
<td>3.29-8-6</td>
<td>12,314</td>
<td>131</td>
</tr>
<tr>
<td>8-6-6</td>
<td>4.94-8-6</td>
<td>9,984</td>
<td>131</td>
</tr>
<tr>
<td>Check (No fertilizer)</td>
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<td>6,525</td>
<td>131</td>
</tr>
<tr>
<td>Potash Series:</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>8-4-4</td>
<td>3.29-8-4</td>
<td>11,865</td>
<td>131</td>
</tr>
<tr>
<td>8-4-6</td>
<td>3.29-8-6</td>
<td>13,025</td>
<td>131</td>
</tr>
<tr>
<td>8-6-8</td>
<td>3.29-9-8</td>
<td>13,122</td>
<td>131</td>
</tr>
</tbody>
</table>

*The first column of figures represents fertilizer formulas of phosphoric acid, ammonia and potash in the order named.
In the second column, the ammonia is expressed in terms of nitrogen and the order rearranged to read nitrogen, phosphoric acid and potash.
fertilizer formula containing 8 to 10 per cent phosphoric acid, 2 to 4 per cent ammonia (1.65 to 3.29 per cent nitrogen) and 4 to 6 per cent potash will satisfy the plant food needs of this crop. Under commercial production on the delta an 8-4-6 (phosphoric acid, ammonia and potash) fertilizer is giving satisfactory results. The same formula expressed in terms of nitrogen, phosphoric acid and potash in the order named would read 3.29-8-6.

**Lettuce—Rates of Applying Fertilizer:** In this test the rates of application range from 400 to 2000 pounds per acre. All fertilizer in excess of 800 pounds is applied after thinning as side dressings at first and second cultivations. Results of a six-year study show 1200 pounds per acre to be the most practical rate of application.

**TABLE CXIII**

**LETTUCE—RATES OF APPLYING FERTILIZER ON DELTA SOIL**

*Average Yield for Years 1933 to 1938, Inclusive*

**Fertilizer:** 8% Phosphoric Acid, 4% Ammonia (3.29% Nitrogen) and 6% Potash

*Average Date Planted: Nov. 20*

<table>
<thead>
<tr>
<th>RATE OF APPLICATION</th>
<th>Total Yield in Heads per Acre</th>
<th>Days Required to Mature</th>
<th>Days Bearing Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check (No Fertilizer)</td>
<td>4,398</td>
<td>131</td>
<td>14</td>
</tr>
<tr>
<td>400 Pounds</td>
<td>6,468</td>
<td>131</td>
<td>14</td>
</tr>
<tr>
<td>800 Pounds</td>
<td>9,271</td>
<td>131</td>
<td>14</td>
</tr>
<tr>
<td>1200 Pounds</td>
<td>12,802</td>
<td>131</td>
<td>14</td>
</tr>
<tr>
<td>1600 Pounds</td>
<td>12,706</td>
<td>131</td>
<td>14</td>
</tr>
<tr>
<td>2000 Pounds</td>
<td>11,778</td>
<td>131</td>
<td>14</td>
</tr>
</tbody>
</table>

**Lettuce—Sources of Nitrogen:** Nitrate of soda, sulphate of ammonia and urea are used in this test. With only two years' trial, nitrate of soda is giving best results.

**Lettuce—Sources of Potash:** This test has been in progress only two years. Muriate of potash, sulphate of potash, and kainite are being used. Thus far muriate of potash appears to be superior.

**FIELD STATION E**

**Soil Type:** Blanton Fine Sand

**Irrigation Studies with Vegetables:** "Field Station E" was selected because of its nearness to a flowing well. The furrow type of irrigation is used. The project has been in progress only two years.

The studies underway are:
1. Lettuce—Fertilizer formula test
2. Lettuce—Variety trials
3. Cabbage—Variety trials

**Lettuce—Variety Trials:** The list of varieties discussed under "Field Station D" was used in this study. Imperial strains 847, 615, and 515 produced well.
Cabbage—Variety Trials: This study includes the same varieties discussed under same heading at "Field Station B". Copenhagen Market is producing best, but most of the varieties have been in trial only one season.

Lettuce—Fertilizer Formula Test: This is the first season lettuce fertilizer work has been conducted on this area and no recommendation can be made. Fine heads of quality lettuce were produced. Well irrigated areas were definitely more productive than those receiving less water.