FIFTY-FOURTH ANNUAL REPORT

of the

BOARD OF TRUSTEES

of

The Clemson Agricultural College

to the

General Assembly of South Carolina

1943

The Clemson Agricultural College
RECORD

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</tr>
</tbody>
</table>
LETTER OF TRANSMITTAL

To the Members of the General Assembly
Columbia, South Carolina
Gentlemen:

The trustees of The Clemson Agricultural College are pleased to transmit herewith for your thoughtful consideration, the Report of President R. F. Poole, concerning the affairs of the college for the fiscal year, July 1, 1942, to June 30, 1943. The report reviews, in detail, all college activities and gives a fair conception of the broad and useful scope of work in which the institution is engaged. There is also reflected the very efficient service of the teaching staff and general employees.

Respectfully submitted,

W. W. BRADLEY
President, Board of Trustees

December 1, 1943.
Report of the President of the College

Clemson, South Carolina
December 1, 1943

From R. F. Poole
President, The Clemson Agricultural College

To The Honorable W. W. Bradley
President, The Board of Trustees

Dear Sir:

The fifty-fourth report covering the fiftieth session of Clemson College is presented herewith.

The publication contains reports from the Board of Visitors, the College Treasurer, the Director of Agricultural Experiment Station, the Director of Agricultural Extension Service, the Director of the Department of Fertilizer Inspection and Analysis, the State Veterinarian, and the State Crop Pest Commission.

These reports show that the agencies are performing their duties satisfactorily and are fulfilling the requirements of Acts for which money was appropriated.

Considerable effort has been applied to education in victory gardens, canning, and preserving. The live-at-home program, emphasized for the past several years, was timely and, I believe, has given good results. The personnel of all agencies have been cooperative and have applied their energies toward meeting the needs of the state and nation in time of war. Members of the staff have worked under difficulties but the work has been carried out efficiently and effectively.

Respectfully submitted,

R. F. Poole, President
REPORT OF THE TREASURER
1942-43

Dr. R. F. Poole, President
The Clemson Agricultural College
Clemson, South Carolina

Dear Dr. Poole:

I have the honor of transmitting herewith my annual report of the financial affairs of the Clemson Agricultural College of South Carolina for the fiscal year July 1, 1942 to June 30, 1943, in accordance with an act of the General Assembly.

Respectfully submitted,
S. W. EVANS,
Secretary-Treasurer.

THE CLEMSON AGRICULTURAL COLLEGE
Collegiate Activities
FISCAL YEAR—JULY 1, 1942—JUNE 30, 1943

INCOME

1—State Appropriation ------------------- $165,000.00
2—Privilege Fertilizer Tax ______$200,000.00
   Less Cost Insp. & Analysis ___29,226.52 170,773.48 $335,773.48
3—Federal Funds:
   Morrill-Nelson and Bankhead-Jones Funds_ 45,841.20
   Landscrip ------------------------ 5,754.00 51,595.20
4—Tuition and Fees ------------------- 244,313.67
5—Interest Clemson Bequest and
   Andersen Fellowship ---------------- 3,912.86
6—Miscellaneous Funds:
   Rents College Residences, Sales Electric
   Lights and Water ----------------- 43,650.01

Total Income Collegiate Activities--- $679,245.22
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Amount</th>
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<tr>
<td><strong>A—Personal Service</strong></td>
<td></td>
<td></td>
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<tr>
<td>1—Salaries</td>
<td>Morrill-Nelson and Bankhead-Jones Fund</td>
<td>$45,481.20</td>
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<tr>
<td></td>
<td>Landscrip</td>
<td>5,754.00</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>$51,595.20</td>
</tr>
<tr>
<td></td>
<td>Other Funds</td>
<td>334,609.74</td>
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<tr>
<td></td>
<td>Total</td>
<td>386,204.94</td>
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<td></td>
<td>2—Wages</td>
<td>65,627.72</td>
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<td></td>
<td>Total</td>
<td>$451,832.66</td>
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<tr>
<td><strong>B—Contractual Services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2—Travel</td>
<td></td>
<td>2,337.04</td>
</tr>
<tr>
<td>3—Telegraph and Telephone</td>
<td></td>
<td>2,134.91</td>
</tr>
<tr>
<td>4—Repairs</td>
<td></td>
<td>22,212.49</td>
</tr>
<tr>
<td>5—Printing and Advertising</td>
<td></td>
<td>2,198.72</td>
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<td></td>
<td>Total</td>
<td>28,883.16</td>
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<tr>
<td><strong>C—Supplies</strong></td>
<td></td>
<td></td>
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<tr>
<td>2—Fuel and Electric Current</td>
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<td>37,867.05</td>
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<tr>
<td>3—Feed and Veterinary Supplies</td>
<td></td>
<td>3,106.77</td>
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<tr>
<td>4—Office Supplies</td>
<td></td>
<td>6,246.42</td>
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<td>7—Educational Supplies</td>
<td></td>
<td>14,964.65</td>
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<tr>
<td>8—Motor Vehicle Supplies</td>
<td></td>
<td>3,018.56</td>
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<tr>
<td>9—Agricultural Supplies</td>
<td></td>
<td>1,177.56</td>
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<td>11—Other Supplies</td>
<td></td>
<td>999.33</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>67,380.34</td>
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<tr>
<td><strong>D—Fixed Charges and Contributions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2—Insurance</td>
<td></td>
<td>18,339.69</td>
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<tr>
<td>3—Contributions</td>
<td></td>
<td>530.00</td>
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<tr>
<td>4—Other Fixed Charges</td>
<td></td>
<td>9,316.68</td>
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<tr>
<td>Refunds (Tuition and Laboratory Fees)</td>
<td></td>
<td>9,170.56</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>37,356.93</td>
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<tr>
<td><strong>G—Equipment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1—Office Equipment</td>
<td></td>
<td>123.25</td>
</tr>
<tr>
<td>3—Household Equipment</td>
<td></td>
<td>576.75</td>
</tr>
<tr>
<td>7—Educational Equipment</td>
<td></td>
<td>817.71</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1,517.71</td>
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<tr>
<td><strong>H—Buildings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2—Cold Storage and Kitchen</td>
<td></td>
<td>35,000.00</td>
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<tr>
<td>Less Wages</td>
<td>(Included in Wage Item Above)</td>
<td>7,380.61</td>
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<tr>
<td></td>
<td>Total</td>
<td>27,619.39</td>
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<tr>
<td><strong>Transfers</strong></td>
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<td></td>
</tr>
<tr>
<td>G—Equipment and Plant Fund</td>
<td></td>
<td>17,000.00</td>
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<tr>
<td>H—Buildings—Building Sinking Fund</td>
<td></td>
<td>12,700.00</td>
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<tr>
<td></td>
<td>Total</td>
<td>29,700.00</td>
</tr>
<tr>
<td></td>
<td>Total Collegiate Activities</td>
<td>$644,290.19</td>
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</tbody>
</table>
### Fertilizer Inspection and Analysis, Poison Analysis, Analysis of Water, Soils, Manures, Etc.

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$12,459.00</td>
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<tr>
<td>A-2 Wages</td>
<td>5,867.35</td>
</tr>
<tr>
<td>A-3 Legal Services</td>
<td>603.04</td>
</tr>
<tr>
<td>B-1 Freight, Express, and Deliveries</td>
<td>242.33</td>
</tr>
<tr>
<td>B-2 Travel</td>
<td>2,940.24</td>
</tr>
<tr>
<td>B-3 Telegraph and Telephone</td>
<td>111.65</td>
</tr>
<tr>
<td>B-4 Repairs</td>
<td>54.75</td>
</tr>
<tr>
<td>B-5 Printing and Advertising</td>
<td>708.40</td>
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<tr>
<td>C-4 Office Supplies</td>
<td>597.31</td>
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<tr>
<td>C-11 Other Supplies</td>
<td>5,642.45</td>
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**Total:** $29,226.52

### Smith-Lever Agricultural Extension Work

#### Exhibit B

**Receipts:**

<table>
<thead>
<tr>
<th>Appropriations</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>$496,797.33</td>
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<tr>
<td>State</td>
<td>176,000.00</td>
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**Expenditures:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
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<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$521,799.70</td>
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<tr>
<td>A-2 Wages</td>
<td>3,521.52</td>
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<tr>
<td>B-1 Freight, Express, and Deliveries</td>
<td>1,102.58</td>
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<tr>
<td>B-2 Travel</td>
<td>92,592.84</td>
</tr>
<tr>
<td>B-3 Telegraph and Telephone</td>
<td>7,577.65</td>
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<tr>
<td>B-4 Repairs</td>
<td>2,696.28</td>
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<tr>
<td>B-5 Printing and Advertising</td>
<td>16,077.68</td>
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<tr>
<td>B-6 Water, Heat, Light, and Power</td>
<td>595.46</td>
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<tr>
<td>C-11 Other Supplies</td>
<td>19,337.88</td>
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<tr>
<td>D-1 Rents</td>
<td>1,200.51</td>
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<tr>
<td>D-2 Insurance</td>
<td>1,129.76</td>
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<tr>
<td>G- Equipment</td>
<td>5,165.47</td>
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</table>

**Total:** $672,797.33

### South Carolina Experiment Station Federal Funds

(Adams, Hatch, Purnell and Bankhead-Jones)

#### Exhibit C

**Receipts from Treasurer of the United States:**

<table>
<thead>
<tr>
<th>Fund</th>
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</thead>
<tbody>
<tr>
<td>Hatch Fund</td>
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<tr>
<td>Adams Fund</td>
<td>15,000.00</td>
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<tr>
<td>Purnell Fund</td>
<td>60,000.00</td>
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<tr>
<td>Bankhead-Jones Fund</td>
<td>59,464.96</td>
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**Total:** $149,464.96
## SUPPLEMENTARY REPORTS

### Expenditures:

<table>
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<th>Category</th>
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<td>A-1</td>
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<td>A-2</td>
<td>Wages</td>
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<td>A-3</td>
<td>Special Payments</td>
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<td>B-1</td>
<td>Freight, Express and Deliveries</td>
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<tr>
<td>B-2</td>
<td>Travel</td>
<td>785.93</td>
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<tr>
<td>B-3</td>
<td>Telegraph and Telephone</td>
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<tr>
<td>B-4</td>
<td>Repairs</td>
<td>1,996.83</td>
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<tr>
<td>B-5</td>
<td>Printing and Advertising</td>
<td>1,811.52</td>
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<tr>
<td>B-6</td>
<td>Water, Heat, Light, and Power</td>
<td>506.70</td>
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<tr>
<td>B-7</td>
<td>Other Contractual Services</td>
<td>559.17</td>
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<td>C-2</td>
<td>Fuel Supplies</td>
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<td>C-3</td>
<td>Feed and Veterinary Supplies</td>
<td>9,794.34</td>
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<td>C-4</td>
<td>Office Supplies</td>
<td>1,051.86</td>
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<tr>
<td>C-7</td>
<td>Educational Supplies</td>
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<td>C-8</td>
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<td>C-9</td>
<td>Agricultural Supplies</td>
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<td>Other Supplies</td>
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<td>D-1</td>
<td>Rents</td>
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<td>D-2</td>
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<td>G-1</td>
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<td>G-6</td>
<td>Livestock</td>
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<td>G-7</td>
<td>Educational Equipment</td>
<td>319.66</td>
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<td>G-8</td>
<td>Other Equipment</td>
<td>1,630.24</td>
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<td>H-2</td>
<td>Buildings</td>
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<td>H-3</td>
<td>Non-Structural Improvements</td>
<td>1,089.90</td>
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<td><strong>Total</strong></td>
<td><strong>$149,464.96</strong></td>
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### Agricultural Research

## Exhibit D

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>A-1</td>
<td>Salaries</td>
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<td>A-2</td>
<td>Wages</td>
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<td>Freight, Express, and Deliveries</td>
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<tr>
<td>B-2</td>
<td>Travel</td>
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</tr>
<tr>
<td>B-3</td>
<td>Telegraph and Telephone</td>
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<tr>
<td>B-4</td>
<td>Repairs</td>
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<td>Printing and Advertising</td>
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<td>Water, Heat, Light, and Power</td>
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<td>Feed and Veterinary Supplies</td>
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<td>Office Supplies</td>
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<td>C-8</td>
<td>Motor Vehicle Supplies</td>
<td>1,008.00</td>
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<td>C-9</td>
<td>Agricultural Supplies</td>
<td>2,890.49</td>
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<tr>
<td>C-11</td>
<td>Other Supplies</td>
<td>166.96</td>
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</tbody>
</table>
CLEMSON AGRICULTURAL COLLEGE

D-2 Insurance .......................... $1,946.08
D-3 Contributions ......................... 106.66
D-4 Other Fixed Charges ................. 6.85
G-5 Agricultural Equipment ............. 79.00
G-6 Livestock .......................... 690.00
G-7 Educational Equipment .............. 17.80 $ 50,000.00

Crop Pests and Diseases
Exhibit E

Expenditures:

A-1 Salaries ................................ $ 6,232.00
B-2 Travel .................................. 563.53
B-3 Telegraph and Telephone ........... 7.29
B-4 Repairs ................................ 17.27
C-4 Office Supplies ....................... 36.25
C-8 Motor Vehicle Supplies .............. 338.56
C-11 Other Supplies ....................... 1.11
G-4 Motor Vehicle Equipment ............. 241.99 $ 7,438.00

Edisto Experiment Station
Exhibit F

Expenditures:

A-1 Salaries ................................ $ 7,695.00
A-2 Wages .................................. 7,356.29
B-1 Freight, Express, and Deliveries .... 4.07
B-2 Travel .................................. 208.57
B-3 Telegraph and Telephone ........... 142.75
B-4 Repairs ................................ 904.21
B-6 Water, Heat, Light, and Power ...... 340.81
C-2 Fuel Supplies ......................... 377.19
C-4 Office Supplies ....................... 242.84
C-6 Medical Supplies ...................... 28.87
C-7 Educational Supplies ................. 3.69
C-8 Motor Vehicle Supplies .............. 854.43
C-9 Agricultural Supplies ............... 3,905.53
C-11 Other Supplies ....................... 1,504.87
D-2 Insurance ................................ 853.69
D-4 Other Fixed Charges .................. 46.44
G-1 Office Equipment ...................... 84.88
G-5 Agricultural Equipment .............. 98.13
G-7 Educational Equipment ............... 98.33
G-8 Other Equipment ...................... 792.52
H-2 Buildings ................................ 3,610.15
H-3 Non-Structural Improvements ......... 846.74 $30,000.00
### Land Use Project

**Exhibit G**

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-2 Wages</td>
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<tr>
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</tr>
<tr>
<td>B-2 Travel</td>
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</tr>
<tr>
<td>B-3 Telegraph and Telephone</td>
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<tr>
<td>B-4 Repairs</td>
<td>486.68</td>
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<tr>
<td>B-6 Water, Heat, Light, and Power</td>
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<tr>
<td>C-3 Feed and Veterinary Supplies</td>
<td>254.05</td>
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<tr>
<td>C-8 Motor Vehicle Supplies</td>
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<tr>
<td>C-9 Agricultural Supplies</td>
<td>1,955.86</td>
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<tr>
<td>C-11 Other Supplies</td>
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<td>G-5 Agricultural Equipment</td>
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<tr>
<td>G-6 Livestock</td>
<td>2,460.26</td>
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<td>G-7 Educational Equipment</td>
<td>6.00</td>
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<tr>
<td>G-8 Other Equipment</td>
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<td><strong>Total</strong></td>
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### Tobacco Research Work

**Exhibit H**

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>A-1 Salaries</td>
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<td>B-6 Water, Heat, Light, and Power</td>
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<td>B-7 Other Contractual Services</td>
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<td>C-2 Fuel Supplies</td>
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<td>C-4 Office Supplies</td>
<td>122.00</td>
</tr>
<tr>
<td>C-8 Motor Vehicle Supplies</td>
<td>431.65</td>
</tr>
<tr>
<td>C-9 Agricultural Supplies</td>
<td>2,564.08</td>
</tr>
<tr>
<td>C-11 Other Supplies</td>
<td>127.62</td>
</tr>
<tr>
<td>D-2 Insurance</td>
<td>197.37</td>
</tr>
<tr>
<td>G-1 Office Equipment</td>
<td>140.00</td>
</tr>
<tr>
<td>G-5 Agricultural Equipment</td>
<td>1,334.89</td>
</tr>
<tr>
<td>G-8 Other Equipment</td>
<td>31.62</td>
</tr>
<tr>
<td>H-2 Buildings</td>
<td>1,235.94</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$14,158.55</strong></td>
</tr>
</tbody>
</table>

### Truck Experiment Station

**Exhibit I**

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$6,676.32</td>
</tr>
<tr>
<td>A-2 Wages</td>
<td>5,562.25</td>
</tr>
<tr>
<td>B-2 Travel</td>
<td>35.91</td>
</tr>
<tr>
<td>B-3 Telegraph and Telephone</td>
<td>192.62</td>
</tr>
<tr>
<td>Category</td>
<td>Amount</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Repairs</td>
<td>511.07</td>
</tr>
<tr>
<td>Water, Heat, Light, and Power</td>
<td>147.70</td>
</tr>
<tr>
<td>Office Supplies</td>
<td>106.20</td>
</tr>
<tr>
<td>Educational Supplies</td>
<td>116.82</td>
</tr>
<tr>
<td>Motor Vehicle Supplies</td>
<td>446.83</td>
</tr>
<tr>
<td>Agricultural Supplies</td>
<td>2,012.55</td>
</tr>
<tr>
<td>Other Supplies</td>
<td>429.40</td>
</tr>
<tr>
<td>Rents</td>
<td>300.00</td>
</tr>
<tr>
<td>Office Equipment</td>
<td>4.93</td>
</tr>
<tr>
<td>Agricultural Equipment</td>
<td>23.50</td>
</tr>
<tr>
<td>Other Equipment</td>
<td>68.65</td>
</tr>
<tr>
<td>Buildings</td>
<td>1,298.79</td>
</tr>
<tr>
<td>Non-Structural Improvements</td>
<td>66.46</td>
</tr>
</tbody>
</table>

**Livestock Sanitary Work**

Exhibit J

<table>
<thead>
<tr>
<th>Expenditures:</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$32,135.12</td>
</tr>
<tr>
<td>A-2 Wages</td>
<td>27.50</td>
</tr>
<tr>
<td>A-3 Special Payments</td>
<td>5,153.75</td>
</tr>
<tr>
<td>B-2 Travel</td>
<td>8,625.52</td>
</tr>
<tr>
<td>B-3 Telegraph and Telephone</td>
<td>271.40</td>
</tr>
<tr>
<td>C-11 Other Supplies</td>
<td>4.00</td>
</tr>
<tr>
<td>D-2 Insurance</td>
<td>42.19</td>
</tr>
<tr>
<td>D-3 Contributions</td>
<td>2,290.52</td>
</tr>
</tbody>
</table>

**Horticultural Products Laboratory**

Exhibit K

<table>
<thead>
<tr>
<th>Expenditures:</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$3,717.14</td>
</tr>
<tr>
<td>A-2 Wages</td>
<td>2,373.00</td>
</tr>
<tr>
<td>B-2 Travel</td>
<td>18.40</td>
</tr>
<tr>
<td>B-4 Repairs</td>
<td>193.65</td>
</tr>
<tr>
<td>B-6 Water, Heat, Light, and Power</td>
<td>256.01</td>
</tr>
<tr>
<td>C-7 Educational Supplies</td>
<td>113.52</td>
</tr>
<tr>
<td>C-8 Motor Vehicle Supplies</td>
<td>71.12</td>
</tr>
<tr>
<td>C-11 Other Supplies</td>
<td>1,590.21</td>
</tr>
<tr>
<td>G-8 Other Equipment</td>
<td>1,076.97</td>
</tr>
<tr>
<td>H-2 Buildings</td>
<td>589.98</td>
</tr>
</tbody>
</table>

TOTAL                           $18,000.00

TOTAL                           $48,550.00

TOTAL                           $10,000.00
**Cadet Funds**

Exhibit L

(These funds, paid by the students for their living and other expenses, are kept entirely separate. None of this money is used to pay the cost of teaching.)

**Expenditures:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$32,883.28</td>
</tr>
<tr>
<td>A-2 Wages</td>
<td>$93,741.36</td>
</tr>
<tr>
<td>A-3 Special Payments</td>
<td>$1,127.00</td>
</tr>
<tr>
<td>B-2 Travel</td>
<td>$5,198.70</td>
</tr>
<tr>
<td>B-3 Telegraph and Telephone</td>
<td>$1,335.49</td>
</tr>
<tr>
<td>B-4 Repairs</td>
<td>$12,432.63</td>
</tr>
<tr>
<td>B-5 Printing and Advertising</td>
<td>$17,396.98</td>
</tr>
<tr>
<td>C-1 Food Supplies</td>
<td>$313,984.97</td>
</tr>
<tr>
<td>C-2 Fuel Supplies</td>
<td>$28,649.09</td>
</tr>
<tr>
<td>C-4 Office Supplies</td>
<td>$975.45</td>
</tr>
<tr>
<td>C-5 Laundry Supplies</td>
<td>$7,624.11</td>
</tr>
<tr>
<td>C-6 Medical Supplies</td>
<td>$4,013.39</td>
</tr>
<tr>
<td>C-7 Educational Supplies</td>
<td>$2,382.52</td>
</tr>
<tr>
<td>C-8 Motor Vehicle Supplies</td>
<td>$1,175.36</td>
</tr>
<tr>
<td>C-10 Uniform</td>
<td>$103,790.83</td>
</tr>
<tr>
<td>C-11 Other Supplies</td>
<td>$26,391.13</td>
</tr>
<tr>
<td>D-1 Rent</td>
<td>$762.00</td>
</tr>
<tr>
<td>D-2 Insurance</td>
<td>$7,483.33</td>
</tr>
<tr>
<td>D-4 Other Fixed Charges</td>
<td>$2,757.41</td>
</tr>
<tr>
<td>G-1 Office ___Equipment</td>
<td>$494.88</td>
</tr>
<tr>
<td>G-2 Medical Equipment</td>
<td>$154.15</td>
</tr>
<tr>
<td>G-3 Household Equipment</td>
<td>$11,512.41</td>
</tr>
<tr>
<td>G-4 Motor Vehicle Equipment</td>
<td>$1,809.40</td>
</tr>
<tr>
<td>G-7 Educational Equipment</td>
<td>$175.75</td>
</tr>
<tr>
<td>G-8 Other Equipment</td>
<td>$1,384.64</td>
</tr>
<tr>
<td>H-3 Non-Structural Improvements</td>
<td>$2,514.01</td>
</tr>
<tr>
<td>Transfers—Concert Series</td>
<td>$5,919.64</td>
</tr>
<tr>
<td>Transfer—Athletics</td>
<td>$14,781.34</td>
</tr>
<tr>
<td>Transfers—Eng. Dept.</td>
<td>6,056.10</td>
</tr>
<tr>
<td>Transfers—Dorm. Bldg. Fund</td>
<td>20,160.00</td>
</tr>
</tbody>
</table>

Total Expenditures $32,883.28
Refunds to Students $5,198.70

Total $38,081.98

Balance on Hand July 1, 1942 $45,934.15
Balance on Hand June 30, 1943 23,934.51

$784,250.24
### Student Banking Account

**Exhibit M**

**Expenditures:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance on Hand July 1, 1942</td>
<td>$27,632.34</td>
</tr>
<tr>
<td>Deposits - Current Year</td>
<td>$223,389.32</td>
</tr>
<tr>
<td>Checks Paid Current Year</td>
<td>$213,209.48</td>
</tr>
<tr>
<td>Balance June 30, 1943</td>
<td>$37,812.18</td>
</tr>
</tbody>
</table>
REPORT OF BOARD OF VISITORS

The Clemson Agricultural College
Clemson, South Carolina
To the Board of Trustees

Gentlemen:

The duly constituted Board of Visitors made their annual visit to the college on Wednesday, May 5 and remained through Friday, May 7, 1943, for the purpose of reviewing its various activities, measuring its accomplishments, and proposing procedures for improvements to meet the advancing needs.

We were cordially received by Dr. R. F. Poole, President, the Deans of the various departments and their assistants, all of whom did everything possible to make our stay at Clemson both pleasant and instructive. The itinerary had been arranged which made it possible for us to inspect all of the buildings, grounds and various departments of this great institution and to investigate all phases of student life and curricula activities.

After conducting our tour of investigation, we respectfully beg leave to make the following observations and recommendations to the Board of Trustees:

(1) We recommend that the Board investigate salaries paid at comparable institutions in various states and exert themselves to improve and increase the salaries paid the heads of departments and members of the faculty at Clemson. We are informed that some of the best teachers at Clemson have transferred to other colleges because of the inducement of higher salaries and it is fundamental that Clemson will be unable to maintain instructors of the type necessary to maintain its high scholastic record unless they receive adequate compensation for their services. It is imperative, especially in this time of war when the cost of living is high, that some relief be obtained for these faithful servants so as to relieve them from unnecessary hardship and undue worry. We are informed that many professors continue on at Clemson largely because of their feeling of genuine affection for the work they are doing and the community in which they reside. In this connection, we also suggest that some plan be formulated whereby an adequate retirement fund can be provided for all instructors and employees who are not covered by Social Security.

(2) The proper authorities should immediately and carefully study and consider the advisability of establishing, as soon as practicable, a graduate school.

(3) We were very much pleased with the new and improved facilities recently completed at Clemson, including the new cold storage plant, the stadium, water plant, additions to the kitchen, field house and
the garbage disposal system, most of which were constructed under the supervision of the college personnel and reflect great credit on them in the quality of work done in the construction of these items.

(4) We found that the Agricultural and Extension Departments are well organized and staffed and are doing an excellent job for South Carolina.

(5) The School of General Science, under the leadership and direction of Professor S. M. Martin, was visited and found to be entirely adequate in every respect.

(6) We also visited the Engineering Building in charge of Dean Earle and found it to be over-crowded, due to the annual increase of students specializing in this particular course. This department is well and efficiently directed and is doing an excellent work, as is reflected by the high standing of its graduates and the extraordinary demand for their services by private interest. It occurs to us that some of the congestion in this department might be relieved if some of the classes could be transferred to another building. In this event superior work might be accomplished.

(7) We were very much pleased with the efficient and economical operation of the mess hall under the supervision of Captain Harcombe. We found the food to be of excellent quality and variety and quite sufficient. We were particularly impressed with the excellent sanitary condition of both the mess hall and the kitchen facilities.

(8) We inspected several of the barracks and found them to be properly maintained and adequate, with the exception of barracks number one, which is in very bad shape and should be renovated and repaired as early as practicable.

(9) The hospital is under the capable management of Dr. Lee Milford and we found it to be in excellent condition so far as operative and professional equipment is concerned, but there is not sufficient space to adequately meet its requirements, and, in our opinion, the quarters should be enlarged. In connection with the health of the community, we recommend that some action be taken with the view of securing the services of a resident dentist.

(10) The Y. M. C. A. is well and efficiently operated by Secretary Holtzendorff and performs a very necessary function in the spiritual, moral, and social life of the campus. The building, however, is in a bad state of repair and needs to be completely renovated.

(11) The dairy barns, hog barns, poultry farm, canning plant and orchards are efficiently operated and provide much needed food items to the college, at a great savings to the taxpayers. We heartily endorse the partial Live-at-Home Program sponsored by the college authorities.

(12) We visited the School of Textiles operated under the direction of Professor Eaton and observed that the textile building has adequate space but needs additional modern equipment.

(13) It is obvious that the outstanding need at Clemson is a new chemistry building. We are informed that the old chemistry building
was built when the student body was less than one-fourth its present size. Chemistry is now a required subject at Clemson and the capacity of the present plant is inadequate for teaching and research work.

The Board of Visitors feel that the subject of chemistry has unlimited possibilities, especially during the time of the war and in investigating and solving numerous post-war problems. Dean Calhoun of the Chemistry Department is to be congratulated for the excellent service he is rendering with the limited facilities available.

(14) Clemson does not have adequate funds with which to carry on the superlative job it is doing in South Carolina. We recommend that additional funds be provided for this institution even if it should require an increase in tuition fees.

(15) Administrative Offices, including the Commandant, Treasurer, and Registrar, are efficiently operated and we especially commend Mr. Littlejohn for his business judgment and administration of the practical affairs of the college.

(16) We enjoyed a parade and various other formations by the Cadet Corp, which appeared to be well trained, disciplined, and of excellent morale. The cadets are courteous, genteel, well mannered and soldierly in their appearance.

In conclusion we found everyone affiliated with Clemson College, both faculty and students, imbued with the ideal and desire to make this institution a finer and better place in which to train the young men who attend it and prepare and train them for the highest type of citizens. We found evidence in every particular of the highly efficient manner in which the college is operated and we have only the highest praise for the Administrative Officers of this institution and wish to assure you that, in our opinion, South Carolina is indeed fortunate in having Dr. Poole and his assistants at the head of this great institution.

Respectfully submitted,

J. HARVEY CLEVELAND, Chairman
R. M. JOLLEY, Secretary
W. A. BARNETTE
R. A. EASTLING
J. N. McBRIDE
D. K. McCOLL
L. S. MITCHELL
A. W. SKARDON
J. B. PRUITT
Dear Dr. Poole:

I submit herewith the report of the Department of Fertilizer Inspection and Analysis. The shortage of certain fertilizer materials has resulted in marked changes in fertilizer practices. One of the most significant improvements is the reduction in the number of grades of fertilizer used. This reduction in the number of grades has simplified the inspection procedure and resulted in securing a relatively large number of samples for analysis from the grades most commonly used.

Respectfully submitted,

H. P. Cooper, Dean and Director

Inspection and Analysis of Fertilizers: In conformity with the South Carolina state fertilizer law, representative lots of all fertilizers sold in the state during the fiscal year 1942-43 were inspected and weighed. Special attention was given to the labeling of fertilizer to see that all tags and formulae met the requirements of the law. Of the 4,450 lots of fertilizer sampled and analyzed, 6.6 percent, were deficient in plant food beyond the limits set by law. In each of these cases the manufacturer involved was required to make a refund to the farmer.

During the past year there has been a considerable shortage of certain fertilizer materials. This shortage has been especially acute in the case of nitrogenous materials. In order to safeguard food production the government's agencies limited the number of grades which could be sold in all states. In South Carolina the number of grades was limited to fifteen, exclusive of straight materials. Eleven of these grades were recommended by the college. This big reduction in the number of grades has resulted in a simplification of the work of this department as well as that of the fertilizer industry. Our work has been simplified further by the movement of fertilizer by rail rather than by truck. Normally most fertilizer is moved by truck. Each truck may have several grades of fertilizer, therefore it has been necessary to take several samples from each shipment. This year, movement was by rail and usually involved solid cars of one grade, thus necessitating only one sample per car. The tonnage represented by each sample averaged much higher under these conditions than during past years.
In addition to the analysis of fertilizers and fertilizer materials the fertilizer laboratory undertakes the analysis of unexploited waters and mineral deposits. It also makes analyses of parts of human bodies for poisons when properly submitted by Coroners.

The following is a brief summary of the activities of the Department of Fertilizer Inspection and Analysis for the year 1942-1943.

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lots of fertilizers sampled and analyzed</td>
<td>4,450</td>
</tr>
<tr>
<td>Lots of fertilizer found to be deficient</td>
<td>295</td>
</tr>
<tr>
<td>Percentage of fertilizer found to be deficient</td>
<td>6.6</td>
</tr>
<tr>
<td>Number of lots attached because of violations</td>
<td>14</td>
</tr>
<tr>
<td>Number of lots fined because of violations</td>
<td>13</td>
</tr>
<tr>
<td>Total receipts from fines collected</td>
<td>$445.37</td>
</tr>
<tr>
<td>Total receipts from registrations</td>
<td>$1,760.00</td>
</tr>
<tr>
<td>Total receipts from tag sales</td>
<td>$200,649.45</td>
</tr>
<tr>
<td>Total refunds to department</td>
<td>$592.33</td>
</tr>
<tr>
<td>Total of receipts 1942-43</td>
<td>$203,447.15</td>
</tr>
<tr>
<td>Total of receipts 1941-42</td>
<td>$168,260.06</td>
</tr>
<tr>
<td>Increase</td>
<td>$35,187.09</td>
</tr>
<tr>
<td>Number of toxicological examinations</td>
<td>8</td>
</tr>
<tr>
<td>Number of water samples analyzed</td>
<td>8</td>
</tr>
</tbody>
</table>

Due to the fact that conditions are still abnormal the governmental agencies have again acted to restrict the number of grades to the minimum necessary for crop production. Fourteen grades, exclusive of materials, have been approved for the 1943-44 crop year.

Conditions have changed considerably since last season in that no serious shortage of chemical nitrogen is contemplated for next season. It will be necessary, however, for all concerned to make adjustments in their practices due to the fact that materials other than those normally available must be used. Organic nitrogenous materials will be allocated mainly for feeds. The increased production of nitrogenous materials will be largely ammonium nitrate and nitrogen solutions. Supplies of phosphoric acid appear to be adequate for fertilizer uses. The materials in which a shortage is contemplated for the 1944 crop year are those containing potash. A reduction of approximately 19% of the average potash supply for the past two years is contemplated.
Dear Dr. Poole:

As requested in your favor of August 3, we are submitting in duplicate the annual report of this department for the fiscal year ending June 30, 1943.

Respectfully submitted,

W. K. Lewis, State Veterinarian.

The activities and accomplishments of the department are as follows:

**Brucellosis (Bang's Disease)**

This project was established only a few years ago and has proven to be of wonderful assistance to cattle owners especially breeders and dairymen, in freeing their herds of this disease. From July 1, 1934 to June 30, 1943, we have tested a total of 56,155 herds containing 421,811 head of cattle. Of course, the total number of cattle tested during this period includes the retesting of some of the herds more than once where infection was originally found.

This project consists of two classes of work: Accredited Herd and Area Testing. At the close of this fiscal year we had a total of eighty (80) accredited herds containing 5,780 head of cattle.

Area testing, so far, has been conducted on a county-wide basis in the following counties: Aiken, Allendale, Bamberg, Barnwell, Calhoun, Cherokee, Chester, Fairfield, Lancaster, Lexington, Newberry, Orangeburg, Richland, and York, and is now being conducted in Saluda, Spartanburg and Union counties. As a result of this testing the percentage of infection has been reduced to less than one percent in Aiken, Allendale, Bamberg, Barnwell, Cherokee, Chester, Lancaster, Newberry and York counties and the same have been designated as Modified Accredited Bang's Disease Free Counties. The percentage of infection at present in Calhoun, Fairfield, Lexington, Orangeburg and Richland counties is very slightly above one percent and therefore temporarily they cannot be classified as Modified Accredited Bang's Disease Free counties.

Our activities under this project have been curtailed during the past year due to the fact that veterinarians assigned to this class of work have been called into the armed forces.
Bovine Tuberculosis

The State of South Carolina was declared a Modified Accredited State, free from bovine tuberculosis on November 1, 1935. This was accomplished by the testing of all cattle six months of age and over during a period of years and the state is now recognized as Modified Accredited not only by the U. S. Department of Agriculture, Bureau of Animal Industry, but all other states as well. We, however, continue to test a certain number of cattle in each county once every three years and have found comparatively little infection.

During the fiscal year ending June 30, 1943, out of a total of 15,825 cattle tested, only seven (7) reactors were found on five (5) premises. In addition to the testing by employees of this department, most of the large breeding and dairy herds in the state are being tested at the owners' expense in order to maintain their accredited herd status. At present we have a total of ninety-five (95) accredited herds with 7,888 head of cattle and we have 56,818 herds with 200,144 cattle under our supervision.

The results of our accomplishments under this project are reflected in the good prices that are now being obtained by cattle owners not only through the auction sales held each year by the breeders' associations but private sales as well.

Hog Cholera

A greater interest is being taken in the hog industry and is increasing year by year. During the past year this department assisted farmers in treating 14,662 herds containing 199,611 hogs against cholera, the percentage of infection being relatively low as compared to previous years, only 202 outbreaks being found or reported.

Swine Sanitation

Internal parasites in swine cause a great loss by lack of development in the individual which decreases the value of swine by several thousand dollars annually. The plan outlined by us for controlling this condition and followed through by hog raisers continues to give great results. This project is growing in favor each year.
Laboratory Service

During the past year 174,444 specimens were examined in or under the supervision of our laboratory, the same being from all classes of livestock and poultry. The extent of this service is summarized as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Premises</th>
<th>Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>36,305</td>
<td></td>
</tr>
<tr>
<td>Chickens</td>
<td>137,930</td>
<td></td>
</tr>
<tr>
<td>Swine</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Sheep and Goats</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Turkeys</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Dogs</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Horses and Mules</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Quail</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Rabbits</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>174,444</strong></td>
<td></td>
</tr>
</tbody>
</table>

This branch of our department is rendering a wonderful service to the livestock and poultry owners and it enables us to advise them of rational methods of treatment.

Other Conditions

We are requested to make investigations and treat livestock against several diseases other than those mentioned. During the fiscal year just ended we assisted livestock owners in treating their animals against various conditions as follows:

<table>
<thead>
<tr>
<th>Disease</th>
<th>Premises</th>
<th>Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhagic Septicemia</td>
<td>267</td>
<td>7,100</td>
</tr>
<tr>
<td>Blackleg</td>
<td>352</td>
<td>6,302</td>
</tr>
<tr>
<td>Keratitis</td>
<td>37</td>
<td>2,123</td>
</tr>
<tr>
<td>Rabies</td>
<td>436</td>
<td>843</td>
</tr>
<tr>
<td>Fowl Pox</td>
<td>131</td>
<td>49,579</td>
</tr>
<tr>
<td>Encephalomyelitis</td>
<td>28</td>
<td>130</td>
</tr>
<tr>
<td>Other Conditions</td>
<td>437</td>
<td>6,655</td>
</tr>
</tbody>
</table>

Deputy State Veterinarians

This class of employee consists of practicing veterinarians who are called upon to assist us in emergencies. The location of the same in various sections of the state and the services rendered by veterinarians on this force assures the livestock owners of obtaining prompt service on short notice. This plan has been followed for the past several years and has proven most satisfactory.

Respectfully submitted,

W. K. Lewis, State Veterinarian.
Attached is the Annual Report of the Crop Pest Commission for the fiscal year 1942-43. In previous reports attention was called to the need for additional help to meet the demands made by citizens of the state for the services of the Commission. I am glad to report that at the last session of the General Assembly provision was made for the appointment of a Bee Inspector, which will partly relieve the burden heretofore carried by the staff.

Respectfully submitted,

H. P. Cooper, Dean and Director.

During the fiscal year ending June 30, 1943, work in the following fields was carried on by this Commission: nursery inspection, greenhouse inspection, tomato and cabbage plant inspection, cotton seed certification, bee disease eradication, package and queen bee certification, quarantines against serious pests, issuing of information on plant pests, inspection of seed Irish potatoes, sweet potatoes, and enforcement of the Insecticide and Fungicide Act.

Work carried on in cooperation with the United States Bureau of Entomology and Plant Quarantine was as follows: Japanese beetle eradication, phony peach disease inspection and eradication, and white-fringed beetle surveys.

Nursery Inspection

During the year plants were inspected and certified in one hundred sixty-seven nurseries of the state. These nurseries are located in thirty-eight counties. Twenty-nine more nurseries were inspected during this period than in the same period of the previous year. Results obtained through these inspections permitted our people to compete satisfactorily with nurseries in other states.

In several instances some of the common pests such as scale insects, red spiders, aphids and a few plant diseases were discovered on isolated plants. Advice was given on the control of these pests and they were promptly disposed of by proper control or eradicative measures.

As usual many inspections of plants were made for those people who do not grow sufficient stock to be classed as nurserymen, but who
in the aggregate ship hundreds of plants each year. It is just as im-
portant, of course, that these plants be free of pests as it is those of
the larger nurserymen.

**Greenhouses**

Fifty-three greenhouses were inspected last season. They were
found to be well kept but some plots were located. Owners were ad-
vised to procedures and methods of killing the pests.

**Bulbs**

Although bulbs are classified as nursery stock by the regulations,
the peculiar habits of the insects affecting this specialized crop made
two inspections necessary to assure freedom from pests. During the
season one hundred forty-four acres of paper white narcissus, daffodils
and gladiolus were inspected and certified. The second inspection in-
cluded 1,500,000 bulbs in storage.

**Sweet Potatoes**

Three sweet potato inspections were made; namely, field, storage,
and plant bed. In many cases two field inspections were necessary to
meet the requirements of other states. Four hundred and twenty-five
inspections were made involving 675 acres located in thirty-four coun-
ties. The value of this crop which is produced mainly for seed is esti-
mated at approximately $400,000.00.

There were bedded 19,556 bushels with an estimated production of
39,112,000 plants valued at $68,446.00. This, of course, includes only
those growers whose fields and plant beds were inspected by this Com-
misson.

**Irish Potato Inspection**

As has been the custom for the past several years, inspectors again
this year attempted to inspect all of the seed Irish potatoes coming into
Charleston County. Under shipping conditions that prevailed during the
past season, this was practically an impossible task. There were, how-
ever, inspected 98½ car loads of certified seed and 28¼ car loads of
non-certified seed. With the exception of the customary light symp-
toms of rhizoctonia, scab, and late blight, the potatoes were not serious-
ly diseased. There was considerable cold injury, especially in those cars
coming from the midwest. In the absence of United States Department
of Agriculture inspectors there were issued the growers certificates or
statements regarding the condition of these frozen cars, enabling them
to get refunds for the damaged stock. The following varieties of seed
were inspected:
<table>
<thead>
<tr>
<th>Variety</th>
<th>Certified</th>
<th>Non-certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobblers</td>
<td>67</td>
<td>11 1/2</td>
</tr>
<tr>
<td>Katahdin</td>
<td>14 1/2</td>
<td>3</td>
</tr>
<tr>
<td>Bliss</td>
<td>7 1/2</td>
<td>1</td>
</tr>
<tr>
<td>Pontiac</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Sebago</td>
<td>4 1/2</td>
<td>0</td>
</tr>
<tr>
<td>Green Mountian</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Sequoia</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Long White</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

These potatoes came from Prince Edward Island, Maine, Michigan, and North Dakota.

It was encouraging to note that of all the seed inspected seventy-eight per cent was certified stock. This would indicate that the efforts of the inspectors and other agricultural agencies have been of some value to the growers in impressing upon them the importance of clean planting stock.

**Phony Peach**

Phony peach control has been in progress for many years. This is a cooperative project with the United States Bureau of Entomology and Plant Quarantine. Each year since the discovery of this disease in South Carolina this Commission has carried on inspection and eradication work in the orchards of the state. During the past season the work consisted of inspections in Aiken, Edgefield, Greenville, Greenwood, Laurens, Saluda, Spartanburg, Union, and York Counties with the results shown in the following table.

<table>
<thead>
<tr>
<th>Counties</th>
<th>No. prop. inspected</th>
<th>No. trees inspected</th>
<th>No. prop. infected</th>
<th>No. trees infected</th>
<th>No. new infections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aiken</td>
<td>1</td>
<td>4,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Edgefield</td>
<td>45</td>
<td>97,020</td>
<td>11</td>
<td>37</td>
<td>4</td>
</tr>
<tr>
<td>Greenville</td>
<td>37</td>
<td>12,628</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Greenwood</td>
<td>7</td>
<td>102</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Laurens</td>
<td>5</td>
<td>4,118</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Saluda</td>
<td>22</td>
<td>99,518</td>
<td>10</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Spartanburg</td>
<td>367</td>
<td>930,804</td>
<td>26</td>
<td>40</td>
<td>21</td>
</tr>
<tr>
<td>Union</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>York</td>
<td>3</td>
<td>10,925</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>488</td>
<td>1,159,116</td>
<td>50</td>
<td>100</td>
<td>26</td>
</tr>
</tbody>
</table>
All infected trees have been removed. One drawback in the performance of this work is the lack of sufficient funds for employing seasonal inspectors which would enable us to inspect a greater area. We feel that considerable progress has been made in the reduction of losses caused by this disease. Formerly the entire state was in the regulated area, but last year due to the successful inspection and eradicative measures all peaches in counties of the state with the exception of the above mentioned ones were considered free from the disease.

Inspections involving fifty-two properties and 6,115 trees were made within a mile radius of the only two nurseries growing peach stock in the state.

**Cotton Seed**

During the season approximately 5,000 acres of cotton were inspected and certified enabling the larger seed breeders to dispose of seed in states which require actual field inspections to determine the presence or absence of injurious pests. The fields inspected and from which planting seed are to be secured showed very little signs of any disease whatever and remarkable varietal purity.

**Bees**

In accordance with the Bee Disease Act and regulations there were inspected and certified 2,754 colonies of bees for those beekeepers who sell package bees and queen bees. Two colonies were found infected with American foulbrood and three with European foulbrood. The two with American foulbrood were burned and the three containing European foulbrood were requeened. These are the standard control measures for these diseases.

Heretofore it has been impossible, with the personnel available, to do much more bee inspection work than that for the commercial beekeepers. This has been alleviated by the allotment of funds for the employment of a full time bee inspector. It is hoped that much good work can be done in the eradication of foulbrood from the infected areas of this state.

**Japanese Beetle**

This is another project carried on cooperatively by the U. S. Bureau of Entomology and Plant Quarantine and this Commission. Each year the Bureau sets traps in strategic cities of this state where beetles are most likely to become established. From the results of this trapping during the past two years it was found that small infestations occurred at Florence and Greenville. During June of this year the State Crop Pest Commission and the Bureau of Entomology treated seven acres of soil at Florence and seven acres at Greenville. Arsenate of lead at the
rate of 500 pounds per acre was sprayed on the soil in these infested areas to poison the upper three inches and thereby to kill the grubs as they feed on the grass roots. This treatment was applied so late last spring that results cannot be obtained before 1944. This treatment has proven very satisfactory in other isolated infested areas. The state furnished 7,500 pounds of arsenate of lead, and an inspector for the full time. The Bureau furnished the spray machinery and one man. The cities furnished the labor and water. Much credit is due the cities of Florence and Greenville for the splendid cooperation given. Without their aid the treatments could not have been made.

White-Fringed Beetle

Each year the U. S. Bureau of Entomology carries on inspection surveys in search of this serious pest which has not yet been found in South Carolina. During this year, however, it has been found alarmingly near the border, having been discovered at Wadesboro and other points in North Carolina.
REPORT OF DIRECTOR OF EXPERIMENT STATION

Dr. R. F. Poole, President
The Clemson Agricultural College
Clemson, South Carolina

Dear Dr. Poole:

I submit herewith a report of certain of the activities of the South Carolina Experiment Station. A more complete detailed report of the research activities is included in the last Annual Report of the South Carolina Experiment Station.

The Experiment Station activities for the year have been very satisfactory. Although there has been an acute shortage of the technical staff and labor, the field activities have been maintained and there is one of the best general crop prospects in the history of the station. Those responsible for the field activities have given personal attention to production activities, which has made it possible to carry on satisfactorily the essential field activities of the station program.

The results at the Coast Experiment Station have been very gratifying. Regardless of the very acute labor shortage one of the finest crops in the history of the station has been produced. Mr. E. D. Kyzer, Superintendent of the station has done much of the farm work himself, which has made it possible for the station to produce such a fine crop.

It has been the general program of the station to carry on the essential field activities and lay a good foundation for additional technical research programs in the post-war period, when it will be possible to replace our technical staff now engaged in war activities.

Yours very truly,

H. P. Cooper, Dean and Director.

Field Crop Studies

The Grain and Forage Crop Situation. The present feed shortage has stimulated more interest in the production of grain and forage crops. The present ceiling price of grain feed and the price of meat has encouraged the feeding of the corn on farms and has created a shortage of grain and protein feed for dairy cattle and poultry. The increased demands for animal products and the decrease in the commercial feed supply will make it desirable to give special consideration to the production of more grain and forage crops.

Since the gross return per acre from grain and hay crops is relatively low, special consideration should be given the climatic and soil conditions existing in the state best adapted to different feed crops. The rainfall is relatively heavy in the winter and early spring in the Piedmont and relatively dry in the summer, which favors the production of winter grain crops and early close growing hay crops such as lespedeza.
In the Coastal Plains region the rainfall is relatively light in the winter and early spring and relatively heavy in the summer, which makes the conditions favorable for corn and such hay crops as soybeans and cowpeas.

It should be remembered that local soil and climatic conditions may materially alter the above generalizations. Excellent small grain and lespedeza crops are produced in the upper and middle Coastal Plains regions, and good corn yields are produced on Piedmont bottom lands and other soils well supplied with moisture.

The growth of close growing crops such as small grain and lespedeza will decrease soil erosion and develop a more satisfactory permanent type of agriculture for this region. The use of steep land for cultivated row crops has resulted in excessive erosion and has permanently depleted much of our potentially good agricultural soil. Maintaining the good soils in a productive state is one of the biggest problems confronting South Carolina farmers.

**Outlook for Fertilizers.** The supply of fertilizer materials will be much more adequate for the 1944 crop season. During the present season it was found necessary to reduce the amount of nitrogen in mixed fertilizers. Due to the increase in the production of synthetic nitrogen and the improved shipping conditions, there will be a larger supply of nitrogen available for agricultural use. It will be possible to obtain grades of fertilizer containing as much or more nitrogen than has been used in the past. There will be no restriction on the use of chemical nitrogen in small grain fertilizers this fall, which should greatly improve the chances of getting good yields of small grain crops. The nitrogen supply has been the limiting material in determining the grades of fertilizers manufactured for the present crop season. For the next crop season potash will probably be the limiting factor in determining the proportion of the various grades manufactured.

**Long Staple Cottons Being Developed at Pee Dee Station.** The progress reported in 1941 in developing extra long cottons is continuing satisfactorily. The shorter staple strains (1 1/2 to 1 1/2 inches) are from selections out of standard upland varieties while those of 1 1/2 inches and longer are from crosses between long staple upland, between upland and sea island and from sea island hybrids. Two early productive sea island strains with staple 1 1/4 and 1 1/4 inches and having fine, strong fibres look promising in the 1943 tests. Several long staple upland hybrids also are promising. These produce readily under boll weevil conditions.

Intensive studies are being made of these cottons in the laboratory to determine the strength, fineness, and other fibre characters upon which the spinning quality depends. With these data and information on performance in the field in comparison with standard varieties, the value of the strains to both the farmer and the mills can be determined in advance. There should be a place for these long staple cottons in the national economy since they are needed for special quality goods.
Defoliating Cotton Reduces Loss from Boll Rot. Seasonal conditions such as prevailed in many parts of the state in 1943 favor development of excessive stalk growth of cotton and result in heavy losses from boll rot, especially when heavy rains occur in late August or September. As much as 30 per cent of all the bolls set have been lost at the Pee Dee Experiment Station under such conditions. Tests to determine how this loss can be prevented have been under way for several years. Very satisfactory results have been obtained through defoliating the cotton by dusting the leaves when wet with dew with a “dusting grade” of cyanamid at the rate of 10 to 15 pounds per acre. In 7 to 10 days after application of the cyanamid almost complete defoliation has occurred. This permits entrance of sunlight and air resulting in less rot, more rapid opening of bolls, and improvement in the grade of cotton. All bolls should be well developed prior to defoliation to prevent possible injury to seed and staple.

New Types of Tobacco Promise Increased Output of Bright Cigarette Leaf. Preliminary results obtained with the new flue-cured types of tobacco, known as 400 and 401, seem to offer new possibilities for increasing the output per acre of bright cigarette or lug grades of leaf. Tests are under way to determine how far the yields of flue-cured tobacco can be increased by heavier fertilization and more intensive cultured methods without sacrifice of quality, when using varieties of the 400 and 401 types. Both are thin, broad leaf tobaccos which have some resistance to the common leaf spots and nematode, or root-knot.

Chicken Manure is Excellent Top Dresser for Tobacco Beds. Repeated tests have shown that chicken manure is one of the most satisfactory and effective fertilizers for top dressing tobacco beds. The manure should be dry and finely chopped. Application should be made when the plants are dry and about the size of a quarter. One to one and one-half bushels of manure is sufficient for 100 square yards of bed area. Plants grown with chicken manure as a top dresser in addition to the regular fertilizer are thrifty, yet less succulent, and live better when transplanted into the field.

Winter Cover Crop of Rye Should Precede Cotton in Sandhills. The entire soil profile of the Sandhill region is known to be very high in fine to coarse sand and comparatively low in organic and inorganic colloids, thus providing a porous physical structure for the relatively free movement of air and water. This characteristic property of these soils is conducive to greater biological activity, and to increased oxidation and leaching. The resulting loss of organic matter and soluble plant food causes a decrease in fertility and inability to sustain satisfactory plant growth. Soluble commercial fertilizers and organic residues turned into the soil, therefore, are soon lost unless some appropriate measure is employed for their retention.

The results of extensive studies of different practices at the Sandhill Station show that the best measure to employ when cotton is grown (and probably in the case of other crops also) is to grow a winter cover crop of rye preceding the cotton. Where this is done, there are
smaller losses of plant nutrients from the soil, the soil carbon is increased more and the yields of cotton are greater than following other winter cover crops such as vetch, Austrian peas, and combinations of vetch and Austrian peas and rye and vetch.

**Effect of Plowing under Ammonium Sulphate on the Yield of Corn for Grain and for Silage.** Tests conducted at Clemson in 1942 indicated a heavy application of nitrogenous fertilizer placed eight or ten inches below the surface of the soil before or at planting time may materially increase the yield of corn. In these tests 400 pounds per acre of ammonium sulphate was applied in the bottom of alternate two-horse turn-plow furrows as the land was being prepared before planting. This placed the fertilizer in approximately two-inch bands eighteen inches apart and nine inches below the surface of the soil. In addition to the ammonium sulphate plowed under, the corn was fertilized at the time of planting with 300 pounds of a 5-10-5 fertilizer placed two inches to one side of the seed and was top-dressed with 160 pounds of sodium nitrate placed on the surface of the soil and between the rows when the corn plants were about waist high. Check plots where no ammonium sulphate was plowed under (but which received 300 pounds of 5-10-5) gave a yield of 58 bushels of grain while the plots where the ammonium sulphate was plowed under gave a yield of 72 bushels per acre. On another area in the same field one-half of each of the plots was cut for silage and the other half harvested as grain. In these tests the check plots gave a yield of 48 bushels of grain or 12 tons of silage per acre, while the plots where 400 pounds of ammonium sulphate were plowed under produced 68 bushels of corn or 17 tons of silage per acre.

**Adequate Potash and Nitrogen Supply Reduces Cotton Wilt.** During the past several years plants of resistant and susceptible cotton varieties, some healthy and others infected with wilt, have been grown in nutrient solutions under varying levels of nutrition. The nutrient elements intensively studied have been those of nitrogen, potassium and magnesium. There have not been any significant differences in wilt severity or plant longevity under high and low levels of magnesium nutrition.

It has been found that high potassium nutrition lessens the severity of wilt symptoms in both susceptible and resistant varieties and increases the longevity of infected plants. The level of potassium nutrition has a significant influence upon the absorption of other nutrient elements by the plants.

**Implements Being Developed for Use in "Mulch Farming."** Experiments started at Clemson in 1939 have shown that organic residues left on the soil surface are much more effective in controlling runoff and erosion than when the residues are incorporated with the soil. The mulches also increased the organic matter content of the soil and the amounts of available nitrogen, phosphorous and potash. During the period from August 1939 to December 1941 the runoff from plots which had been mulched with four tons of organic matter per acre annually was only
3.5 percent of the total precipitation, while similar plots in which equal quantities of organic matter were incorporated with the soil lost 42.7 percent. The soil loss from mulched plots was 0.7 ton per acre as compared with 54 tons where the organic matter was incorporated with the soil.

These preliminary experiments demonstrated the value of “mulch farming” on sloping land provided tillage methods suitable for use by the average farmer could be developed to the point where winter cover crops could be grown and the plant material retained on the soil surface during the growth of the succeeding corn or cotton crop instead of being plowed under as is the usual practice.

During the past two years field scale experiments have been under way at Clemson in which mulch farming is being compared with clean tillage using corn as the test crop. In these experiments determinations are being made of the effects of the treatments on crop yields, runoff, and erosion. One of the most important phases of this work is the testing and development of tillage equipment suitable for use in mulch farming. Considerable progress has been made in this phase of the work, and it is believed that practical equipment and cultivating methods will be developed which will not only greatly reduce erosion but which will also increase crop yields and reduce the labor required to produce the corn.

**Seed Treatment with Hormones.** In recent years many claims have been made, especially in chemical advertisements, for the treatment of seeds with the so-called plant hormones. The hormones have been reported as increasing the rapidity of plant emergence, stimulating the formation of roots and bringing about the production of greater yields. To investigate this matter cotton and corn seed treated with various concentrations of indol butyric acid, potassium naphthol acetate, and naphthalene acetic acid have been planted in experimental plots for two seasons. Data on seedling emergence and yields have shown no beneficial effects for these seed treatments, regardless of the value of the chemicals for other purposes. It is important, however, to remember that the chemical stimulation of plants is still new and that important developments may be expected in the modification of plant growth to increase production.

**Experiments With Peanuts**

**Fertilizers and Lime.** The value of lime and fertilizer in peanut production was clearly shown in experiments conducted in 1940 and 1942 at the Edisto Station on a field of Norfolk coarse sandy loam low in fertility. The results were as follows:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yield per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>No lime or fertilizer</td>
<td>300 lbs.</td>
</tr>
<tr>
<td>1000 lbs. lime (no fertilizer)</td>
<td>445 lbs.</td>
</tr>
<tr>
<td>500 lbs. 3-12-8 (no lime)</td>
<td>613 lbs.</td>
</tr>
<tr>
<td>500 lbs. 3-12-8 and</td>
<td></td>
</tr>
<tr>
<td>1000 lbs. lime</td>
<td>1008 lbs.</td>
</tr>
</tbody>
</table>
These figures show in a striking way the value of both fertilizer and lime for peanuts. Other treatments in the same experiment indicate that on similar soils peanuts respond first to phosphorus, next to nitrogen and then to small degree to potash.

**Variety Test.** The small Spanish variety of peanuts grown from seed obtained locally led in the variety trials for the three year period, 1939-1941, inclusive. The average yield for this variety was 1546 pounds of threshed peanuts per acre. It was closely followed by Improved Spanish and North Carolina Runner with yields of 1484 and 1464 pounds peanuts per acre respectively. The next highest yielding variety was Virginia Bunch with 1306 pounds per acre. Jumbo peanuts produced an average yield of 854 pounds per acre.

**Seed Treatment.** Treatment of seed peanuts (small Spanish variety) with two dosages each of four materials was used last spring on unshelled, hand shelled and machine shelled seed. Arasan, a new organic sulphur compound, and 2% Ceresan, an organic mercury material commonly used to treat cotton seed, gave excellent results. Spergon, another non-metallic organic material, was next in order of effectiveness, while yellow Cuprocide was unsatisfactory. Stand improvement due to treatment was greatest with machine shelled seed. Such seed treated with Arasan and Ceresan resulted in approximately 23% increased emergence over that obtained from untreated seed. With unshelled and hand shelled seed the same materials improved the stand 17% and 8%, respectively. It should be remembered that previous experience in seed treatment research has shown that the benefits of treatment may be greater or less than these figures indicate, depending upon whether or not soil and weather conditions are favorable to seed decay after planting.

**Sweet Potato Investigations**

The sweet potato investigations at the Edisto Station, which embrace all phases of production, handling and storage, continue to hold the interest of growers in that area. Two field demonstrations were held for farmers from Orangeburg and Barnwell counties. Many other farmers have visited the station principally to observe the sweet potato work in progress. The production of certified sweet potato seed and plants, directed towards the maintenance of superior planting stock, has been increased. In 1943 more than 2,400 bushels of seed and over 475,000 plants of two improved Louisiana Porto Rico strains were distributed to growers. Even so, with the greatly increased acreage of sweet potatoes this year, the available supply did not completely fill the need.

**Seed Treatment.** In sweet potato plant beds moisture and temperature relationships are generally favorable to the development of diseases, which is further encouraged by the crowded condition of the seed roots and growing sprouts. The value of dipping or soaking seed roots in chemical disinfecting solutions for preventing infection or reducing the spread of diseases has long been recognized. However, because some
of the more widely used materials, such as various mercury compounds and formaldehyde, tend to injure the seed roots and reduce or delay sprout production, safer and more effective substitutes have been sought. In 1943 three new treatments, borax, Fermate (an organic sulphur compound) and Spergon were compared with two established treatments, bichloride of mercury and Semesan Bel. All treatments were effective in controlling bed blight and rootlet rot but there were large differences in sprout production. Fermate and borax stimulated early sprouting and gave high total sprout yields (2212 and 2160 sprouts per bushel of seed). Bichloride of mercury and Semesan Bel delayed sprouting but the final yield of sprouts was approximately the same as that from untreated roots (1690 sprouts per bushel of seed). Spergon was intermediate (1849 sprouts per bushel). Although further work may alter these results somewhat, both Fermate and borax show considerable promise as new sweet potato seed treatments.

Field Bedding for Plant Production. A large part of the sweet potato acreage in South Carolina is set from early sprouts produced in artificially heated beds and from vine cuttings produced by early set "mother" patches. However, the production of vines from potatoes bedded directly in the field offers economical as well as labor and time-saving possibilities in setting the crop. In order to test these possibilities, preliminary tests were begun in 1941 and expanded in 1942 and 1943.

In carrying out these tests several sets of cultural and fertilizer practices were compared in order to evaluate various factors. These factors include the use of fertilizer, the use of stable manure, the use of mulches, the regulation of the planting rate by varying the spacing and the size of seed roots, the use of pieces of seed roots, the use of seed treatments and variations in the time of bedding.

The results, based upon vine cuttings made at regular intervals, are too voluminous to be presented here in detail. However, certain conclusions have been drawn. Whole roots performed better than half or quarter sections of roots. Where whole roots were bedded a spacing of one foot between roots produced more vine cuttings per bushel of seed than where the roots were bedded single file, end to end, or in a double file. In general, U. S. No. 1 size roots produced vines earlier than small seed (1 to 1¼ inches in diameter) but the total production of vines per bushel was greater from small seed. The use of 1000 pounds of 3-9-9 fertilizer per acre or the use of 10 tons of stable manure per acre placed in the row increased the yield to a great extent over no fertilizer or no manure, and the benefits shown by manure alone far surpassed those from fertilizer alone. However, maximum yields were obtained when manure and fertilizer were used together. Where the seed roots were treated with Semesan Bel before bedding, vine production was somewhat delayed but the total yield was not affected appreciably. Roots bedded between February 20 and mid March produced less vine growth than those bedded between mid March and April 10.
Where a mulch of pine straw or peanut hulls was applied at bedding time it was very detrimental, as it caused delayed sprouting and reduced the yield of vines. However, mulches applied in mid May increased vine production markedly in each treatment, in some cases more than 100%. In order to give a general comparison of performance, the yield of vines (cuttings made semiweekly from May 26 to July 6) for the series where small seed roots were bedded one foot apart on March 12 was as follows:

| No fertilizer, no manure | 33,184 | 77,750 |
| 1000 lbs. 3-9-9          | 48,144 | 90,550 |
| 10 tons manure           | 79,350 | 143,150 |
| 1000 lbs. of 3-9-9 and   | 100,900 | 145,250 |
| 10 tons manure           |        |        |

Thirty-five bushels of small seed potatoes were required to bed an acre when the roots were placed one foot apart in 4-foot rows. Assuming the maximum yield above, and also that 14,000 vine cuttings are required to plant one acre, the seed required for an acre of sweet potatoes would be about 3½ bushels. This compares favorably with the seed requirements when sprouts grown in hot beds are used to set "mother" patches from which vine-cuttings are taken. However, with field bedding the vine-cuttings can be obtained earlier, resulting in larger yields of sweet potatoes.

**Effect on Yield of Time of Planting Sprouts and Vines.** Field tests, in which the yields from plantings of sprouts and vines set on different dates from May 15 to July 15 have been compared, have been underway since 1940. The results of three seasons' trials show that the yield from vine cuttings exceeded that from sprouts in both total yield and yield of U. S. No. 1 potatoes for each respective date of planting. The difference in favor of vine-cuttings varied from 10 to 30 percent. In each case the yield decreased as the plant setting date was delayed, however, the total yield decreased to a greater extent than did the yield of No. 1's. In general, the planting of sprouts after June 15 or vines after July 1 was unsatisfactory.

Aside from the fact that the use of vine cuttings reduces the risk of losses from root diseases, the increased yields from vines appears to be significant. Cultural practices which enable the setting of vine cuttings as early in the season as possible are desirable.

**Influence of Time of Harvest, Nitrogen Supply and Height of Ridge on Yield.** To show the effect of time of harvest on the yield of the Porto Rico sweet potato comparable plots were harvested on September 1, September 22, October 10 and October 31. In general, the results show
that the later the harvest the greater the marketable and total yield. Thus, higher yields may be expected when the roots are harvested during the latter part of October than during the first part of October or in September.

The influence of a high and low nitrogen supply on yield was obtained by using a 6-8-10 mixture (60 pounds of nitrogen per acre) and a 3-8-10 mixture (30 pounds nitrogen per acre). The results show that the plants which received 60 pounds of nitrogen per acre produced greater marketable and total yields than those which received 30 pounds of nitrogen per acre. Thus, the results indicate that the Unit 1 strain of Porto Rico when grown on soils similar to those on which the experiments were conducted requires relatively high quantities of nitrogen in the fertilizer mixture to produce maximum yields.

Heights of ridge compared were low ridge (3 to 4 inches), medium high ridge (8 to 9 inches) and high ridge (14 to 15 inches). The experimental evidence shows that plants grown on the high ridge produced greater marketable and total yields than those grown on the medium high or low ridge. However, the differences in yields between the medium high and low ridge were much greater than those between the high ridge and the medium high ridge. Thus the use of relatively high ridges is recommended.

**Truck Crop Problems**

**Vegetable Soils Problems in Wartime.** Unless the increased production of vegetables called for during the war emergency is carefully planned with due regard for soil problems, many costly failures will result. Experiments conducted at the Truck Station over a number of years indicate that the soil is of paramount importance in vegetable production. Also in order that the limited supply of labor, machinery, fertilizer, seed, and other materials may be fully utilized, it is essential that soils problems be considered.

All vegetable crops require a productive soil containing a liberal supply of organic matter. It should also be well drained but have sufficient water-holding capacity so as not to suffer too greatly during droughts. Vegetable crops grown on soils which are not properly limed will prove a financial failure and in many cases will not produce a marketable product. Experiments on soil acidity have shown the condition most favorable for the various crops. The acidity of any soil may be determined by a simple laboratory test and the necessary amount of lime applied to correct the excess acidity so that it will produce vegetables satisfactorily.

Experiments have also shown what kinds and amounts of fertilizer are necessary for the principal vegetable crops grown in South Carolina. In many cases the use of a small quantity of one of the minor elements, such as magnesium, will determine the difference between profit and
loss. Growers who choose good soils, lime and fertilize correctly and maintain favorable soil conditions through crop rotation and the plowing under of cover crops will contribute effectively to the war effort.

**Vegetable Seed Treatment is Profitable.** When growing vegetables a good stand of plants is essential to the efficient utilization of seed, fertilizer, labor, and land, and to maximum yields. Tests during the past three years at the Truck Station have proven that treatment of vegetable seed with certain dry chemicals greatly increases the chances of obtaining good stands of healthy plants. Seed of some crops respond very favorably to treatment, whereas seed of others do not. With the prevailing scarcity and high price of many vegetable seeds, those that respond favorably should be treated since the cost of treatment is usually only a few cents per pound. Seed of beets, spinach, peas, lima beans, okra, and lettuce should always be treated. Treatment of snap beans and sweet corn and of the tubers of Irish potatoes usually is not profitable. Tests have also shown what materials and dosage are most effective for each particular crop.

**Truck Station Develops New Cabbage which is Cold Resistant.** Cabbage is classed as one of the essential crops during the present emergency. For several years South Carolina cabbage growers have been clamoring for a better variety of cabbage. Most of the present varieties frequently are killed during the winter or go to seed before heading in the spring. The winter of 1942-43 was particularly severe on cabbage, most of the plants being killed by a cold wave in the early winter. A high percentage of the plants surviving this cold wave seeded before heading in the spring. However, certain selections made by the Truck Station not only survived the cold but 75 to 90 per cent of the plants of these strains produced marketable heads. Not a single seed stalk appeared in some of the selections whereas most of the commercial varieties produced large percentages of seeders.

These hardy selections are round-head types found in Charleston Wakefield, which is a pointed-head variety but which frequently is damaged in shipment to a greater degree than round-head varieties. The selections have been inbred to obtain uniform lines and seed of some of them is now being increased for release to growers.

**New Potato Varieties are Promising.** Variety tests with potatoes have been made at the Truck Experiment Station for several years to determine whether any of the newer varieties developed by the U.S.D.A. and a few state experiment stations are better adapted to the coastal area of South Carolina than are Irish Cobbler and Bliss Triumph, which have been the standard varieties.

Results of the tests indicate that Katahdin and Pontiac are the best of the many varieties tested. Both varieties are a few days later than Irish Cobbler. Katahdin has smooth, white, shallow-eyed tubers, whereas those of Pontiac are fairly smooth and red in color. Pontiac consistently outyields the other varieties. In tests on three farms dur-
ing the past two seasons the average yields for Pontiac, Katahdin, and Irish Cobbler were 295, 231.5, and 220 bushels per acre, respectively. For all around dependability Katahdin appears to be the best of the newer varieties for the coastal area of South Carolina. It can be relied on for good yields nearly every season and frequently outyields Cobbler. Its smooth, attractive tubers bring a premium on some markets. South Carolina growers the past season planted about 25% of their acreage to Katahdin and Pontiac.

RESEARCH ON CROP PESTS

Substitutes for Molasses in Boll Weevil Mopping Mixture. It is well known that the economical production of cotton, South Carolina’s greatest money crop, depends to a large extent on the control of insects which attack it, particularly the boll weevil. The method of boll weevil control most widely used in South Carolina has been mopping with 1-1-1 mixture of calcium arsenate, water and blackstrap molasses. Since the latter is a critical war material, it became necessary to conduct experiments to determine whether substitutes for molasses might be used satisfactorily. Substantial progress has been made in these investigations and it is now known that blackstrap molasses is not essential to the success of the mopping mixture.

Small scale experiments have shown that one-half pound of corn starch, or one pound of wheat flour, or one pound of dry paste (such as used for hanging wallpaper) is equal to one gallon of blackstrap molasses in making the mopping mixture. Either of these amounts mixed with two gallons of water and one pound of calcium arsenate produces a mopping mixture similar to the regular 1-1-1 mixture. If starch is used, it should first be boiled in the water and allowed to cool before the calcium arsenate is added. Flour or dry paste can be mixed directly with cold water and calcium arsenate without difficulty. Either of these three mixtures is similar to the regular 1-1-1 mixture in mopping characteristics and has produced results comparable to the 1-1-1 mixture in controlling the boll weevil.

Many experiments have shown that small amounts of calcium arsenate dust applied to the cotton plants in the pre-square stage are equally as effective as the 1-1-1 mopping mixture in controlling the boll weevil. This dust can be applied with regular dusting machines adjusted to release very small amounts or by means of elongated “shaker cans.” Mailing tubes 10 to 20 inches long and from 3 to 5 inches in diameter with several small holes punched near the center of the metal bottom make ideal shaker cans for this purpose. With a quick downward movement of this can a small amount of dust can be applied directly in the buds of the plants. Two to 3 pounds of calcium arsenate can easily be made to cover an acre of cotton. Farmers can expect just as good boll weevil control by using either dusting machines or shaker cans for applying calcium arsenate dust in the pre-square stage as by using any other method of pre-square control.
Considerable interest has been expressed by farmers in the value of commercial mopping mixtures for boll weevil control and inquiries have been received as to their value in comparison with the regular 1-1-1 mopping mixture. Only one of these materials was available commercially prior to this year—“Mop-N-Mix.” Experiments at the Pee Dee Station show that it compares quite favorably with the regular 1-1-1 mixture in controlling the boll weevil.

Since molasses does not attract boll weevils, as many people have thought, it has no advantages over other mopping mixtures. The substitute materials may therefore be used under present conditions without sacrificing efficiency in controlling the boll weevil.

Fluosilicates are Substitutes for Calcium Arsenate in Dusting for the Boll Weevil. In some years and under certain conditions it is necessary to dust cotton for boll weevil control following mopping. Calcium arsenate has long been the standard insecticide used for that purpose. Unfortunately, however, certain of the lighter types of sandy soils in the state are subject to injury following the use of calcium arsenate. Investigations have been under way for a number of years to find a substitute for calcium arsenate which was not injurious to the soil. In recent field tests, both sodium and barium fluosilicate compared favorably with calcium arsenate when dusting for the control of the boll weevil. Tests are now under way which, it is hoped, will result in the development of these insecticides to the point where they can be satisfactorily used as substitutes for calcium arsenate.

An Adjustable Spray Boom for Controlling Insects on Tobacco. Spray machines are widely used for applying insecticides to tobacco in South Carolina. A common type used by growers is some form of a mule-drawn traction sprayer. With properly adjusted spray booms and nozzles good control can be obtained with such machines, but as the tobacco plant is constantly changing form and height, both during growth and the harvesting period, an adjustable spray boom for controlling the tobacco hornworm or the tobacco flea beetle is especially valuable. Such a spray boom, made from galvanized pipe which can be secured from a local hardware store, was developed at the Pee Dee Experiment Station in 1941. Experiments conducted in 1942 and 1943 definitely show that this spray boom has many advantages over the ordinary type and that it is practical for tobacco growers.

The Tobacco Hornworm and Flea Beetle can be Controlled with Cryolite. With the scarcity of certain insecticides, control of the tobacco hornworm or the tobacco flea beetle can be obtained with cryolite (sodium fluoaluminate). Best results in hornworm control have been obtained by applying the insecticide as a spray. Six pounds of undiluted cryolite and 1 pound of wheat flour (used as a sticker) should be added to each 50 gallons of water. The spray should be applied with spraying equipment that will give adequate plant coverage. Best results in flea beetle control have been obtained by using the cryolite in the dust form. A cryolite dust mixture
containing at least 70 per cent of sodium fluoaluminate should be used. Plant beds should be treated with at least one-half pound per 100 square yards. Where newly transplanted plants are treated, a small-type “puff” duster may be used to apply the material at a rate of three to five pounds per acre per application. For larger plants, the dust mixture should be thoroughly applied when there is little or no wind and at the rate of about 15 pounds per acre.

Cowpea Curculio. Investigations of this insect indicate that the earliest planted cowpeas are most heavily infested by this insect, and that the later plantings are the least infested. This insect is one which seems virtually immune to applications of insecticides, hence cultural methods seem to offer best promise. While we cannot expect that a mere change of planting date will get rid of the insect, there is the hope that it will lessen the infestation and lessen the loss caused by it. Further tests are in progress.

Rice Weevil in Farm Stored Corn. For a number of years, the Department of Entomology has conducted investigations of the rice weevil and associated insects which damage stored corn. Different type cribs or bins have been used in the experiments. From the tests run so far, however, it would seem that ordinary corn cribs can be made sufficiently gas tight for fumigation by lining with gummed kraft paper or sisal-kraft paper if the walls are strong enough to prevent breaks in the paper when the crib is filled with corn.

In bins lined as indicated, dry corn, whether in shuck, shucked, or shelled, has been fumigated successfully and practical control achieved in our tests with dosages of 2 pounds chloropicrin or 6 pounds of carbon bisulfide per 1000 cubic feet of space. Lesser amounts of fumigants failed to kill all of the insects in the upper layers of corn. These dosages should be considered tentative since tests have not been completed for all conditions.

Tomato Fruit Worm. To the gardener infestation of tomato fruits seems greater in the earliest part of the fruiting season, drops low during the period of heaviest pickings, and increases again in late season. The infestation seems correlated with the silk ing of nearby corn. When young corn silk is present, the moths seem to prefer to lay their eggs on it, and when young corn silk is scarce or absent more eggs are laid on tomato plants resulting later in more wormy fruits.

Poisoned meal bait sifted or sprinkled by hand on the fruiting portions of the plant seems to offer the best protection. In our tests calcium arsenate, Paris green, and cryolite have given nearly equal results, the Paris green having a slight advantage. Paris green has been used at rates varying from 1 1/4 ounces to 99 ounces of meal, to as strong as 10 ounces to 90 ounces of meal, with virtually the same results, indicating a wide margin of safety.

Several different species of “worms” attack the tomato fruit, but the most common is the species known as Heliothis obsOLETA.
**Faunal Survey Shows Large Number of Insect Species in South Carolina.** A survey of the fauna of the state is maintained by the experiment station and at intervals a summary of the number of known species in the various groups is prepared. The following list shows the number of insect species known to be present in South Carolina in the years indicated:

<table>
<thead>
<tr>
<th>Insect Orders</th>
<th>1926</th>
<th>1931</th>
<th>1936</th>
<th>1941</th>
<th>1943</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthoptera</td>
<td>66</td>
<td>151</td>
<td>192</td>
<td>199</td>
<td>199</td>
</tr>
<tr>
<td>Hemiptera</td>
<td>66</td>
<td>261</td>
<td>351</td>
<td>436</td>
<td>438</td>
</tr>
<tr>
<td>Hymoptera</td>
<td>138</td>
<td>309</td>
<td>477</td>
<td>570</td>
<td>572</td>
</tr>
<tr>
<td>Neuropteroids &amp; Misc.</td>
<td>0</td>
<td>160</td>
<td>452</td>
<td>507</td>
<td>510</td>
</tr>
<tr>
<td>Lepidotteria</td>
<td>20</td>
<td>337</td>
<td>589</td>
<td>618</td>
<td>620</td>
</tr>
<tr>
<td>Coleoptera</td>
<td>339</td>
<td>1,318</td>
<td>1,855</td>
<td>2,194</td>
<td>2,215</td>
</tr>
<tr>
<td>Diptera</td>
<td>105</td>
<td>487</td>
<td>807</td>
<td>906</td>
<td>919</td>
</tr>
<tr>
<td>Hymenoptera</td>
<td>39</td>
<td>407</td>
<td>632</td>
<td>736</td>
<td>757</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>773</td>
<td>3,430</td>
<td>5,355</td>
<td>6,166</td>
<td>6,230</td>
</tr>
</tbody>
</table>

It seems probable that about 12,000 species of insects actually inhabit this state. If so, about half of them are now on record. This information is of value in studying relationships between harmless and destructive kinds of insects and in evaluating the potentialities of a harmless species should it suddenly become destructive.

**Close Relationships Exists Between Wilts of Cotton, Tobacco and Sweet Potatoes.** Many growers of field and vegetable crops have encountered one or more of the various wilts such as cotton wilt, tomato wilt, sweet potato wilt and others. Until recently, the plant pathologists have thought that the fungi causing wilt of these plants were separate species, i.e., that the fungus attacking a plant such as cotton did not attack any other plant. Experimental work at Clemson has shown that the cotton wilt fungus also attacks okra, Burley tobacco and wild senna or coffeeweed. The fact that fusarium wilt fungus of cotton may survive in weeds and other crops when cotton is not grown complicates the application of measures designed to reduce damage from the disease.

Recently, the fusarium wilt organisms obtained from sweet potatoes at two locations in North Carolina and one in South Carolina have been studied. One of the organisms from North Carolina is similar to the one collected in South Carolina in that both of them cause wilt of sweet potatoes, Burley tobacco and the cigarette type flue-cured tobac-
co, but neither attacks cotton. The other North Carolina fungus attacks sweet potatoes and Burley tobacco but not flue-cured tobacco. Another group of the wilts obtained from cotton, Burley tobacco, okra and coffeeweed are alike in that all of them cause wilt of Burley tobacco and cotton but not of flue-cured tobacco or sweet potatoes. Thus we see that there are three related groups or biological races of these wilts, all of which attack Burley tobacco. Two of these races also attack sweet potatoes but not cotton. One of the latter two races attacks flue-cured tobacco, while the other does not. The third race attacks cotton, okra, and coffeeweed in addition to Burley tobacco but does not attack either flue-cured tobacco or sweet potatoes.

Further information as to differences in these races of fusaria is desirable, particularly in connection with the development of wilt resistant strains of cotton and the other crops involved.

Treating Seed Corn. Experimental plantings have been made of comparable lots of untreated and treated seed corn in cooperation with the plant pathologists of 8 other southern states to ascertain the effects of seed treatment. No practical benefits for such seed treatments have so far been demonstrated either as to seedling emergence or yield. This is somewhat at variance with the results in other states. This difference may be correlated with the time of planting. Corn is generally planted relatively late in the season in this state. The observations to date indicate the desirability of further studies of the inter-relations of the time of planting, infection by fungi, infestation by insects, and yields.

DAIRY RESEARCH

Improvement and Utilization of Dairy Pastures. The present great demand for dairy products and the acute scarcity of feeds, particularly the cereals and the high protein meals, have stimulated interest in and emphasized the need for improvement in pastures and for greater efficiency in herbage utilization. Previous investigations revealed that lime and phosphorus are essential for pasture development and maintenance in South Carolina. The inclusion of other plant nutrients, potassium and nitrogen, further increased the yields of herbage on certain soils that had received the basic treatment of calcium and phosphorus.

In addition to soil treatments, the system of grazing affects pasture returns. However, a comparison of rotational grazing with continual grazing (by dairy cows) revealed no marked differences in either yields or quality of herbage, when the annual fertilizer treatment was 400 pounds of 6-12-6 (NPK) per acre. Further comparisons of these two systems of grazing are being made using 400 pounds of 0-12-6 fertilizer and 300 pounds of sodium nitrate per acre instead of the 6-12-6 fertilizer. Though this modified phase of the investigation is still in the preliminary stages, it has become obvious that the use of increased amounts of nitrogenous fertilizer is stimulating the growth of the pas-
ture plants. Thus it seems probable that the rotational system of management may be used more profitably than the continuous system in grazing rapidly growing pasture herbage.

Irrespective of the system of grazing, the use of increased amounts of fertilizer on pastures to augment yields is in accord with the present war emergency recommendations. This increased production of nutritious grass for dairy cows thus aids in the solution of human nutrition problems by increasing milk production.

Control of Infectious Diarrhea in Calves. Infectious diarrhea, or "white scours", is one of the most serious maladies of young calves, taking heavy tolls in many dairy herds of the state. The importance of controlling this disease for future expansion of the dairy herds cannot be overemphasized under the prevailing conditions of accelerated food production. The economic aspect of this problem was aptly expressed recently by a breeder, who was seeking assistance in checking losses of calves from "white scours": "with the high cost of feed and labor and the relatively low ceiling on milk, about the only source of profit for us is in the calf crop."

This is especially true of dairymen maintaining purebred herds. Fortunately, during the past two years the Dairy Department has discovered satisfactory means of controlling this malady. Various drugs of the sulfa family have proved to be efficacious as both preventive and curative agents. Sulfaguanidine has been demonstrated to be effective not only under experimental conditions but also in the practical management of the herd. This drug, used as a curative agent, reduced the mortality rate of infected calves from 75 per cent to 10 per cent in the Clemson College herd. In a privately owned herd 95 per cent of the cases of infectious diarrhea treated with sulfaguanidine recovered; whereas, 100 percent of the cases, either untreated or treated with commonly recommended remedies, died.

The widespread success in the use of sulfaguanidine as a means of controlling infectious diarrhea promises to be of inestimable value to the dairy industry. Further investigations with other drugs supplied by various pharmaceutical organizations are also yielding encouraging results in the treatment of this disease.

Effect of Feeding Cottonseed Meal Upon Milk. In South Carolina cottonseed meal is the principal locally produced concentrate feed. Although the present cost of protein supplements is high, cottonseed meal is still the cheapest source not only of protein, but also of total digestible nutrients, available to dairymen in this state.

Restraint in the use of cottonseed meal as the primary constituent in the dairy ration is advocated not only because of the urgency of protein conservation but also from its deleterious effects on the cow and her milk. Extended research revealed that when this meal was fed as the only concentrate to high producing cows, they were physiologically
upset at various times. Milk produced by these cows, even when they were apparently in a normal condition, was abnormal in composition and in other properties.

Further experiments in feeding cottonseed meal to dairy cows showed that when it is fed in combination with cereals and cereal products in the proper proportion to form a balanced ration (the cottonseed meal should constitute not more than 50% of the concentrate) no undesirable effects on either the cow or the milk were noted. When fed in such a combination the cottonseed meal may be interchanged with peanut meal without any perceptible alteration of the properties of the milk.

The Production of Clemson Blue Cheese. A study of the curing of blue cheese in Stumphouse Mountain tunnel during the past two years has indicated that good quality cheese can be produced under restricted experimental conditions. However, some method of adjusting the atmospheric conditions in the tunnel would be necessary to insure consistent success in larger scale production throughout the year.

During the current emergency when milk is being diverted to the armed forces, measures are being taken to ascertain what alterations of the tunnel will be necessary for commercial production. Already partitions have been constructed in an effort to maintain the desired temperature and humidity from season to season.

By experimentation under the various modified conditions, it is hoped that all obstacles to successful large scale production may be eliminated so that production of blue cheese may serve as one market channel for milk when normal conditions are resumed.

EXPERIMENTAL WORK WITH HOGS AND BEEF CATTLE

Sweet Potato Meal Unsatisfactory for Fattening Swine. Green sweet potatoes make a succulent and palatable feed for most classes of livestock. However, the relatively high cost of production has limited the acreage of sweet potatoes and made the cost of the product too high for general feed use. Other factors that have limited the use of green potatoes as a feed are the high water content and the perishable nature of the product.

In recent years the use of new methods of propagation and of improved machinery have made it possible to handle large acreages with relatively low costs of production. Economical methods of dehydration remove a large percentage of the water and leave a product that can be stored and kept over a long period of time. The feed analyses of this dehydrated product indicate that it should be similar to corn in feeding value.

The livestock feeders of the South are intensely interested in this feed because it seems to offer a source of carbonaceous concentrate at a reasonable price. Several experiment stations have reported good results when dehydrated potatoes were fed to fattening steers. When used in this way, the potatoes were worth about 90% as much as corn.
During the past two years the Animal Husbandry Department has conducted three tests to determine the value of dehydrated sweet potatoes for fattening swine. Pigs varying in weight from 30 to 100 pounds were fed rations containing different amounts of sweet potato meal. In each test the ration was unpalatable and the amounts of feed eaten were not sufficient to support satisfactory growth and fattening. These results do not mean that this product is useless as a pig feed but indicate that some further study of the methods of preparing the dried potatoes so that swine will eat the product readily will be necessary.

**Cross-Bred Pigs More Profitable than Purebreds.** More than one-third of the pigs farrowed on South Carolina farms die before they reach weaning age. This loss reduces farm profits and the amount of pork available for war-time consumption.

Experimental data collected over a four-year period have shown that the percentage of pigs raised can be increased by crossbreeding. Purebred and crossbred pigs were produced from Poland China, Berkshire and Duroc-Jersey swine. The crossbred pigs were heavier than the purebreds at birth and weaning. Eighty-six per cent of the crossbred and seventy-eight per cent of the purebred pigs were raised.

This difference of 10% in mortality was largely due to the size and the vigor of the pigs at birth and suggests that cross-breeding might be profitably used by many swine producers.

**Cottonseed Meal and Hulls for Fattening Steers.** There are several questions that each farmer must answer for himself before starting a steer feeding operation. Some of these questions are—what grade of cattle will give most economical returns, what rations shall be used, how much weight shall be put on the cattle, and, finally, what kind of beef will be produced by the methods used.

To answer some of these questions the Animal Husbandry Department has fed over two hundred medium grade steers in individual pens. The ration of cottonseed meal and cottonseed hulls was compared with shelled corn and lespedeza hay. The steers were fed until they had made 200, 300 or 400 pounds of gain.

The cattle fed cottonseed meal and hulls made faster gains during the short feeding period but were gaining slower than the steers on corn and hay by the time three hundred pounds of gain had been made. The feed cost of the gains was lower in the cottonseed meal and hull lot regardless of the length of the feeding period. The difference in feeding cost was largely due to the relatively high price of hay.

Many feeders use corn and hay because they are grown on the farm and do not have to be purchased. The results of these tests indicate that it would often be profitable to sell these feeds and buy meal and hulls for the cattle feeding. This is especially true if the hay produced is of sufficiently good quality to sell for as much as $15.00 per ton.
The most desirable finish was secured on the steers that were fed until a gain of 300 pounds had been made. The animals sold after a 200-pound gain were slightly thin while those putting on 400 pounds were fatter than necessary for the Southern markets.

When the steers were fed to the same finish, the quality of the beef produced was not affected by the ration used. These results indicate that the discrimination, made by some buyers, against cattle fattened on cottonseed meal and hulls has no justification.

**INVESTIGATION OF POULTRY PROBLEMS**

**Turkey Egg Fertility can be Improved.** The production of a high percent of fertile eggs is a major problem with turkey breeders. Infertility is oftentimes reported during the early part of the breeding season; however, the greatest loss from infertile eggs is usually experienced near the end of the breeding period. The use of artificial lights on both hens and toms will usually increase the percentage of fertile eggs and give satisfactory hatches during the early season. Factors influencing the fertility of eggs during the latter part of the breeding period are not so well known.

Matings of Broad Breasted Bronze turkeys were established to study management factors which might affect fertility. The types of matings were as follows: Eighteen females in each of two pens were mated with single toms throughout the breeding season; forty-five females in another pen were mated with three toms, which were alternated with three additional toms each week; and sixteen females in still another pen were mated to one tom, which alternated with an additional tom twice each week. All birds were housed, but had access to small range lots. All-night lights were started on January 15 and continued throughout the breeding season. Production began on the first of February, and all eggs laid were incubated. The percentages of fertile eggs obtained from the different matings on different dates were as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Single Tom Matings</th>
<th>Toms Changed Once Each Week</th>
<th>Toms Changed Twice Each Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/24</td>
<td>91.7%</td>
<td>92.7%</td>
<td></td>
</tr>
<tr>
<td>3/10</td>
<td>87.3%</td>
<td>92.0%</td>
<td></td>
</tr>
<tr>
<td>3/19</td>
<td>85.7%</td>
<td>91.6%</td>
<td></td>
</tr>
<tr>
<td>4/2</td>
<td>62.6%</td>
<td>91.7%</td>
<td>98.0%</td>
</tr>
<tr>
<td>4/16</td>
<td>56.0%</td>
<td>92.8%</td>
<td>87.0%</td>
</tr>
<tr>
<td>4/30</td>
<td>67.5%</td>
<td>84.7%</td>
<td>90.0%</td>
</tr>
<tr>
<td>5/15</td>
<td>48.0%</td>
<td>79.8%</td>
<td>92.4%</td>
</tr>
<tr>
<td>5/29</td>
<td>41.9%</td>
<td>78.0%</td>
<td>90.4%</td>
</tr>
</tbody>
</table>

Average fertility: 66.0% 86.6% 91.1%
These results indicate that management of toms is an important factor in the fertility of turkey eggs. In the single tom matings fertility was satisfactory at the beginning of the breeding season, but dropped to a low level of 41.9% at the end of the season. In matings with toms alternated once each week the fertility showed some drop during the latter part of the breeding season, but not nearly so much as in the case of the single tom matings. The greatest drop in fertility occurred at the onset of warmer weather. In the pen in which toms were alternated twice each week, the fertility remained excellent throughout the season. In only one hatch was the fertility below 90 per cent.

For the average turkey breeder, fertility of eggs can be improved by alternating toms. It appears most advantageous to alternate toms twice each week; however, changing males once each week should greatly improve fertility. Twice as many males are required for the flock where alternate mating is practiced, but the increase in the number of fertile eggs should repay the increased cost several fold.

Lespedeza is a Satisfactory Green Feed for Poultry. Experimental work with lespedeza meals (both Korean and sericea) in comparison with alfalfa leaf meal as green feed supplements for poultry rations has been under way for several years. Comparative trials of the value of these meals for supplying carotene (pro-vitamin A) and riboflavin (vitamin G) in poultry rations have been made.

The carotene and riboflavin content is variable, depending upon such factors as maturity of the plants at time of cutting, curing methods and the time and conditions under which the meals are stored. With the lespedezas it is important that the hays be cut fairly early and cured so as to retain a maximum of green leaves.

Feeding trials indicate that alfalfa leaf meal, Lespedeza sericea and Korean lespedeza meals are approximately equal in feeding value when used to supply carotene (pro-vitamin A) in poultry rations.

When used as a source of riboflavin, these meals gave similar results with chicks and with hens producing hatching eggs. When the level of riboflavin in one ration was at or near the minimum requirements, slightly better results were obtained when Korean lespedeza meal was used. Further studies with these feedstuffs indicate that a portion of the riboflavin in alfalfa leaf meal and in Lespedeza sericea meal is unavailable to poultry. The riboflavin in Korean lespedeza meal appears to be completely available and equal to crystalline riboflavin in supplementing poultry rations.

Korean lespedeza and Lespedeza sericea are being produced in South Carolina on increased acreages. Their use in supplementing poultry feeds would eliminate the necessity of shipping in large quantities of alfalfa leaf meal from distant points as well as increasing the quantity of locally produced feedstuffs available for poultry.
Effect of a Good School Lunch on the Nutrition of School Children.

A study of two elementary schools in Pickens County, one of which served a good school lunch, shows that a well-planned lunch at school can definitely improve the daily food intake of most children and increase their rate of growth. The children having lunch made greater gains in height than did those in the other school and at the last examination seemed to be in better condition as judged by the skin, hair, and general appearance. They also maintained the hemoglobin content of their blood, whereas the children not receiving a hot lunch showed a decline in their hemoglobin. In both schools, however, the average hemoglobin content of the blood was decidedly below that found among children of the same age in a nearby college community.

A careful survey of all the findings serves to point up a problem. About three-fourths of the children examined were below average height and weight for their sex and age. This fact, along with the relatively low hemoglobin, the poor food intake of many children, the large number of decayed teeth in the permanent set, and other uncorrected physical defects too often found, leads to the conclusion that there is need for concerted effort to raise health levels among South Carolina children.

The Food Supply of Rural Families in Pickens County. In 1939-40 a survey of the food supply for the year was made among a group of rural families in Pickens County. In the spring of 1943, 128 of these households were revisited to see what changes took place the first year of full participation in the war.

It was found that in 1942 more pigs and chickens were raised, garden vegetables in greater variety were grown, more families had home-grown wheat for flour, and more canning was done than in 1939. However, because of shortage of labor and suitable feeds, some farmers were this year (1943) reducing production of food animals and crops.

In spite of a short fruit crop in 1942, 90 families canned 50 quarts or more of foods per person as compared with 46 families who canned this quantity in 1939. Fifty-five per cent of the families made use of steam pressure canning for non-acid vegetables or meat, as compared with 33 per cent who used this method in 1939.

New Vitamin and Mineral Mixtures for Corn Products should Improve Public Health. Samples of corn meal and grits were collected from various sources and analyzed for their nutritional value. It was found that most of the grits consumed in the state are pearl grits and are manufactured in a few large mills located outside South Carolina. Pearl grits and degerminated corn meal were found to have a lower vitamin and mineral content than the locally produced corn meal and grits. Experiments were carried out to determine the best method by which the food value of these products might be improved and thereby improve the health of the people consuming them. It became evident
that corn meal could be enriched in the same way as flour is being enriched to improve its food value. However, since most South Carolinians wash grits before cooking them any means of improving the food value of grits had to take this into consideration because the vitamins in the enriching mixture would be carried away by the rinse water if not protected. To prevent this, "Premix" was developed which contains the enriching vitamins and minerals in an insoluble form.

A law passed by the General Assembly at the last session requires the enrichment of degerminated corn meal and pearl grits. This law exempts rock-ground whole corn meal but nutritionists feel that some enrichment of even that product would be beneficial to public health, Accordingly, an enriching mixture suitable for the purpose has been developed and made available to small mills. This mixture is inexpensive and easy to use and should make a further contribution to the health of those who use locally ground corn meal in considerable quantity.

WAR-TIME ADJUSTMENTS IN FARM ORGANIZATION AND MANAGEMENT

Farmers today are faced with a situation almost completely the reverse of that which they faced just a few years ago. Instead of a surplus of farm commodities selling at ridiculously low prices the demand now is for more and more production at higher prices. Likewise, instead of a high ratio of people to land, farmers find themselves confronted with a labor shortage. During the depression there was more food than there was money to buy it; now there is more money to buy than there is food to sell. This situation prevails in spite of an almost miraculous increase in the total production of agricultural products since 1941. It is due in large part to the abnormalities of war and despite exceedingly favorable weather conditions and the patriotic efforts of the American farmer. Thoughtful farmers are concerned not only with how best to meet the situation as it exists today but also how to avoid the effects of a reaction which will follow once one of the primary reasons for it is removed. The economic and social research studies of the experiment station are designed to shed light on these problems.

"Custom Work" Done by Farmers. One study has concerned itself with the economics of "custom work", that is the use by one farmer of his machinery and equipment to do work for other farmers. This practice, which has long been known in South Carolina, particularly as regards the threshing of grain, has now become widespread and many farmers are doing an unbelievably large amount of work which is not directly related to their own particular farm. One farmer interviewed in connection with these studies reports that last year he cleaned over 700 tons of lespedeza seed for his neighbors. The total value of this seed was approximately $750,000. In order to accomplish this he operated his plant day and night for a period of four months.
**Town-Country Relationship.** Another study has revealed invaluable information on the question of town-country relationships and the factors which influence the distance and direction which farmers travel in order to do their trading. In time of war, particularly, there is urgent necessity for the towns to make a special effort to meet more fully the requirements of farmers as to markets, both for what they have to sell and for what they have to buy. This study reveals the need for readjustments both by farmers and town people. For example, although most of the merchants in a typical Piedmont county assert that they buy locally in season all fresh fruits and vegetables they can get, their sales records show relatively high in-shipments of even such common products as Irish and sweet potatoes during seasons when these commodities should be plentiful. The same situation prevails with respect to other common necessities such as cured hams, eggs and butter. In partial explanation of this the merchants complain of irregularity and uncertainty of supplies and the farmers profess lack of knowledge as to the availability of a local market. In this particular area many farmers expressed a desire for a better meeting place in town; a curb market for their fresh fruits and vegetables; an auction market for their livestock; more adequate facilities for parking; more and better lounging rooms; and more convenient hours for banking and shopping. It seems obvious that in their competition for business during and after the war, the larger towns and cities are going to be forced to make a conscientious effort to provide the facilities and services which farmers feel they have a right to expect.

**War-Time Labor Adjustments.** Other studies indicate that on a number of farms in this state the average worker before the war was profitably employed only about 100 days per year. On the more efficient farms, of course, the average was much higher than this. In other words, while there are certain peak seasons which require large numbers of laborers and during which labor shortages will appear critical, there have always been other periods in which a large proportion of the farm labor supply was more or less idle. It behooves farmers in times like these to readjust their farm enterprises in such a way as to avoid these peak seasons for farm labor insofar as possible and at the same time to provide profitable employment during what heretofore has been a "slack" season. Studies show that although there has been an actual decline in the number of workers per farm, the amount has not been so great as at first believed and in some areas has been relatively unimportant. Indications are that in spite of the declines, farmers have been able to maintain and even increase production by exchanging work with neighbors, making a greater use of machinery, and by working themselves and their families to a somewhat greater extent than before. A part of the increase in production has been accomplished by a readjustment of the enterprises on the farm in the direction of a more even distribution of employment throughout the year. The probability is that many of these adjustments are permanent and that farmers in the state will in general become more efficient as a result.
Landlord-Tenant Agreements Should Have More Consideration. There is much interest in the various types of tenancy prevalent in the state and a strong possibility that the war will result in a number of significant changes in the form of the rental contract between the landlords and tenants. A part of this was under way even before the war, especially in those counties where diversification was making more progress and where the old type of share rental agreements obviously did not meet the need. In the dairy section of the state, for example, many owners have found it expedient to work out a more satisfactory arrangement with their tenants than was possible under the “half and half” system. A study of rental arrangements in a typical up-state county reveals some rather interesting and significant contrasts in the several types of agreements in effect. For example, farmers with good land prefer to rent on a share basis. Cash and standing renters, therefore, are usually found on the poorer farms. At the same time tradition and custom, rather than economics, seem to establish the rate of cash or standing rent. The result is that standing renters on farms having a five year average cotton yield of less than 200 pounds per acre were found to be paying fully as much rent as other renters on farms having an average yield well in excess of 300 pounds per acre. In many cases standing renters were found to be paying as rent more than half of their cotton crop and at the same time they furnished all of the fertilizer, labor and supplies. Had they operated on shares, their rent would not have been any greater and the landlord would have paid at least one-half the cost of the fertilizer. In other words, both landlords and tenants need to give greater consideration to the terms of the agreements under which they operate.

Large Losses Result from Gin-Damaged Cotton. On the basis of 1942 data, gin-damaged cotton in South Carolina is estimated to have resulted in an economic loss to growers amounting to between one-half and three-fourths of a million dollars. Studies indicate that a large percentage of this damage is confined to a comparatively few gins and results either from improper ginning on the part of the ginner or improper preparation on the part of the farmer. It appears from these studies that about 20 per cent of the gins handling 16 per cent of the state’s cotton crop accounted for nearly 40 per cent of the gin-damaged cotton. In these gins approximately three out of every ten bales were reduced at least one grade based upon samples obtained from the press box and classified by government classifiers. On the other hand, approximately 5 per cent of the gins came through the season with a perfect record in that none of the cotton they ginned was damaged.

These studies are intended to help farmers of this state increase their income and reduce their losses. At the same time it is expected that they will provide a basis for the readjustment of agricultural enterprises after the war.
AERIAL PROPAGATION SUCCESSFUL WITH MUSCADINE GRAPES. Recent investigations at Clemson have shown that aerial propagation is successful with the muscadine grape. Aerial propagation is simple and requires a minimum of material or experience. Materials consist of a round tube of cardboard, bamboo, or similar material about two inches in diameter and two cardboard discs cut to fit inside the ends of the tube.

A one-half-inch hole is drilled in the center of one side of the tube, which is then split lengthwise through the hole. The tube is then placed around an arm of the grape vine so that a shoot protrudes through the hole in the side. Damp peat or sphagnum moss is packed in the tube around the arm of the vine. The discs are split to the center so as to slip over the vine and fit in place in the ends of the tube. Several tubes may be located on a single arm of a vine.

The rooting tubes are left in place until abundant root formation has taken place inside the tube. This requires from four to six weeks. The grape arm is then cut on each side of the tube, the tube removed and the shoot cut back to leave about three buds. The plant should be set immediately in fertile soil and kept moist. The following spring before growth starts, the plant should be transplanted to a permanent location.

Wide differences in rooting of different varieties has been observed. The Hunt variety of muscadine grape has consistently formed numerous roots and has made vigorous top growth, while the Scuppernong has formed few roots and made only weak top growth. Rooting of the Hunt variety has been as high as 100 per cent.

NON-PRESSURE PRESERVATIVE TREATMENT FOR PINE POSTS WITH ZINC CHLORIDE AND COPPER SULPHATE. For several years the non-pressure preservative treatment of pine posts, using solutions of zinc chloride and copper sulphate, has been under study at Clemson. The treatment is one which can be carried out inexpensively by the farmer with the use of very little equipment, is simple in operation and requires no special knowledge of wood preservation.

In the short time this study has been in progress, the life of posts treated with these salts has not been determined; they are all still sound. The Extension Service has conducted demonstrations of treating posts in all the counties of the state. Many requests are being received from farmers and agricultural specialists in other states as well as from South Carolina for information on treating posts by this method. The Marine Corps has adopted this method of treating posts which are used in fanning certain areas along the eastern seaboard.

STUDY OF GOLDENROD FOR RUBBER. The critical rubber situation has made it desirable to investigate the possibilities of obtaining rubber from native plants. Of the various plants which have been considered in this connection, goldenrod seems to be the most promising for this section of the country.
A planting consisting of 12 strains of goldenrod replicated five times was made at the Pee Dee Station last spring, using both stolen shoots and cuttings in setting approximately three acres. A similar planting was also made at Clemson. Good growth has been made and several strains seem promising. Each strain will be harvested separately and tests for rubber content will be made in the U.S.D.A. rubber investigations laboratory at Savannah.

Hibiscus for Mucilage. A study is being made of the possibilities of producing and using a little known species of hibiscus (Hibiscus Manihot) as a source of mucilage to replace other sources cut off by the war. The plants grow well and if they are satisfactory as a source of mucilage their commercial production should be possible.

Progress Being Made in Breeding of Peppers. With funds provided by the last General Assembly for work on Special Crops, the breeding of hot peppers has been expanded and considerable progress is being made. The aim in this work is to improve the uniformity, yield, and pungency of the peppers now grown in Florence and adjacent counties. A large number of selections varying widely in their characteristics are being used in efforts to secure a strain which possesses the qualities desired.

Studies are also being made of the effects of variations in the methods of drying and storage upon the color, pungency, and other qualities of the marketable peppers.

Garden Irrigation. Droughts of short or long duration which occur frequently often result in poor yields of vegetable crops. South Carolina has an abundance of springs, small streams, and other sources of water which might be used for irrigating small and large acreages of such high-value crops.

A pond covering approximately one-half acre, with a capacity of 400,000 gallons, was developed in 1942 at Clemson for demonstrating furrow irrigation of garden crops on contoured land. Data on the grading of rows and methods of handling the water under these conditions will be obtained. The pond will be fertilized and stocked with fish, thus serving a dual purpose.

Harvesting Crotalaria for Paper Manufacture. The possibilities of the giant striata variety of crotalaria as a fibre plant are being studied. A tall-crop binder with a special attachment for handling this crotalaria has been used successfully in cutting and binding the mature plants. Samples of the material have been furnished paper manufacturers.

Additional harvesting experiments will be conducted this year, making use of an improved binder. In addition, a field harvester developed for cutting plants into silage lengths in the field will be tested for converting the whole stalks into material which might be used in the manufacture of paper half stock. A low-priced portable power driven decorticator designed to recover hemp fiber will be tried out for recovering crotalaria fiber.
It is expected that tests of the fiber and the whole stalk for various grades of paper will be made to determine its value for these purposes.

Vocational Choices of High School Seniors. A study made of the vocational interests of 1930 white and Negro high school seniors revealed a loss of 59 per cent of the white and 25 per cent of the Negro students between the 8th and 11th grades, a loss thought to be due in part to the need of curriculum revision, to the lack of occupational information, and to the need of vocational guidance. The schools could meet all three needs. As Pascal has well said: "The most important thing in life is the choice of an occupation; chance now decides it." The senior vocational choices confirm the truth of this dictum, for a sharp contrast was found between the proportion of persons actually employed in a given vocation and that of students choosing that vocation.

Agriculture engages one-fourth of the white males of South Carolina over 14 years of age and one-seventh of those in the United States, yet only one out of fifteen of the high school white male seniors chose it. The discrepancy between the agricultural choices of the Negro male high school seniors and the proportion of Negro males in the nation and state so engaged was still greater.

The choice of professional services by the youth of both races was out of proportion to need as indicated by the number engaged in such professional service in South Carolina and the United States. The Census shows that for every 25 white males in the United States there is only one engaged in a profession. In South Carolina there are 44 white males to every one professionally employed. But professional service was the choice of approximately one out of six of the white and one out of 15 of the Negro male high school seniors. These choices indicated a lack of information as to demand and supply in the world of gainful employment.

To meet the rapid development of war industries there has been an increase in the occupational training offered in high schools. However, other needs are not being met as is indicated by the pupil loss during the four high school years. These needs include the desire of students for vocational courses, student ignorance of supply and demand in gainful employment, and the need of vocational counselling.
1942 ANNUAL REPORT OF THE EXTENSION SERVICE

Dr. R. F. Poole, President
The Clemson Agricultural College
Clemson, South Carolina

Dear Dr. Poole:

In response to your letter of August 3 I am enclosing a copy of our annual report intended for your use in preparing the annual report of the Board of Trustees to the General Assembly. You will note that we have followed a new style of preparation which is intended to save space while giving more information.

Respectfully submitted,

D. W. Watkins, Director.

The Clemson College Extension Service is that branch of the Clemson Agricultural College charged with the responsibility of conducting with the farm people of South Carolina the program of educational and demonstration work in Agriculture and home economics of the College and the United States Department of Agriculture cooperating.

The headquarters of the Extension Service is located at Clemson College, Clemson. The home demonstration branch of the service has headquarters at Winthrop College, Rock Hill, and Negro Extension work has headquarters at the State Negro College at Orangeburg.

Personnel

The Director of the Extension Service at Clemson is in charge of all extension work in the state. The extension staff of agricultural workers includes an Assistant Director, three district supervisory agents, a chief clerk and accountant, 46 county agents,—one in each county—19 assistant county agents, and 31 agricultural specialists representing agricultural engineering, beekeeping, boys’ 4-H club work, crop insects and diseases, dairying, farm management, field crops, forestry, fruits and truck crops, livestock, marketing, poultry, publications, soil conservation, and visual instruction.

The extension home demonstration staff includes a state home demonstration agent, an assistant state agent, three district supervisory agents, 46 home demonstrations,—one in each county—seven assistant home demonstration agents, and seven home demonstration specialists, representing clothing, food production and conservation, girls’ 4-H club work, home management, nutrition and poultry.
Negro extension workers include a Negro district agent for agricultural work, a Negro supervisory agent for home demonstration work and 19 Negro agricultural agents and 16 Negro home demonstration agents, located in counties having large Negro farm population.

The 1942 Extension Wartime Program

Extension work in South Carolina in 1942 was devoted entirely to the development of the war program for agriculture. Extension had been girding itself for such a job for over two years before Pearl Harbor, and it was with a minimum of confusion and lost motion that the change was made from a peace-time program to an all-out war program.

The basic objectives of extension work in war times are not fundamentally different from those in peace time. The same peace time problems of efficient production and marketing of farm products, changing farm production to meet changing needs as reflected by changing demands, conserving and maintaining the fertility of the soil, and the maintenance of farm income at a level necessary to provide an adequate standard of living for the farm family, are still the main problems of war time, and are greatly intensified under the stress of war conditions.

The main change in the program of extension work was one of emphasis. . . . Less effort was given to long-time agricultural programs and fact-finding demonstrations, and more effort was given to encouraging and assisting farmers in the application of methods and practices already proven to be sound and applicable. . . . Less emphasis was given to the economical balancing of farm operations and more to the immediate production and marketing of the crops and livestock needed by the nation at war.

New problems constantly arose. Farmers were asked to produce more and more with less and less....less labor....less machinery and equipment ....less fertilizer....less insecticides.... less gasoline and tires for transporting farm products....and less of many other items of materials and equipment to which they have been accustomed.

Abrupt shifts had to be made in individual farm plans....peanuts where they had never grown before. . . . more livestock on farms where mainly crops had been grown....more poultry....more eggs.... more milk....more hogs....more vegetables....more sweet potatoes.... more soy beans....more long staple cotton.... These were among the messages carried to farm people by extension workers, who then pitched in wholeheartedly to give the farmers the technical help needed in planning and carrying out this adjusted program of increased production.

Extension workers contacted farm families throughout the year by every means at their disposal....82,168 farm and home visits to 48,668 different farms....13,534 newspaper articles....5,159 circular letters giving timely information....580,790 bulletins distributed....250,302 of-
office calls and 110,000 telephone calls at county extension workers' offices....463 radio talks....19,997 demonstration meetings attended by 233,309 farm people....4,021 adult result demonstrations conducted....136 showings of educational motion pictures, filmstrips and slides to 16,238 farm people.

Food and feed production for home use, and food for the armed forces and the civilian population of the nation and its allies was emphasized as the greatest contribution South Carolina farmers could make to the war effort. Farmers were informed as to the state and county goals for war crops and assisted in making the necessary adjustments in their farming operations in order that these goals might be reached.

Voluntary Farm and Home Leadership

Voluntary county, community and neighborhood farm and home leadership organization was strengthened....46 county agricultural committees made up of 2,402 representative farmers and farm women gave invaluable service in planning and carrying out county programs....1,100 community agricultural committees served as centers of activity for 2,677 neighborhood committees representing 93 percent of the neighborhoods in the state—and made up of 8,746 neighborhood leaders, who were led to acquaint farm people with the wartime situation and needs, and enlist their participation in the war effort.

Unselfish service to their neighbors, communities and counties was the outstanding characteristic of these voluntary wartime agricultural leaders in 1942. Extension workers trained them to do specific jobs and they did these jobs well....They assisted in arranging and conducting 2,506 educational meetings which were attended by 78,861 farm people....helped in taking orders for 117,672 tons of ground limestone as AAA conservation material and as direct purchase....carried information on inflation control to farm people....assisted in collection of 38,640 tons of scrap metal and 3,312,551 pounds of scrap rubber by farm people....aided in the enrollment of 20,114 farm families in program to produce and conserve 75 percent of their food and feed needs on their farms....assisted in the sale of war bonds and stamps to the value of $1,299,017.40 to 21,551 farm families....explained the Share-the-Meat program to farm families....encouraged farmers to destroy cotton stalks early to control boll weevil....showed new peanut growers proper methods of harvesting and stacking....encouraged victory gardens....sponsored 4-H clubs and community home demonstration clubs. These and many other jobs were performed by voluntary farm and home leaders.

The response of the farmers of the state to the call for greater production to meet wartime needs was earnest and wholehearted. In the face of many handicaps caused by the shortages, farmers pitched
in and, without reservation, gave their best to the war effort.... Individual farm plans were changed, to meet the new war needs....less important jobs were laid aside for the duration....old equipment was patched up and put back to work....farmers worked longer hours, and many who had retired went back to farm work.... Farm women and children did more field work than is normal in peace time....production was pushed to the limit.

The following listed table based upon data from the Bureau of Agricultural Economics, Crop Reporting Section, shows the response of the farmers of South Carolina in terms of increased production of important products needed in the war effort.

<table>
<thead>
<tr>
<th>Item</th>
<th>1941 Acres or Numbers</th>
<th>1942 Acres or Numbers</th>
<th>Percent Increase 1942 over 1941</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peanuts</td>
<td>17,000 Acres</td>
<td>60,000*</td>
<td>253</td>
</tr>
<tr>
<td>Long Staple Cotton</td>
<td>56,000 Acres</td>
<td>90,500</td>
<td>62</td>
</tr>
<tr>
<td>Poultry</td>
<td>4,978,000 Head</td>
<td>5,476,000*</td>
<td>10</td>
</tr>
<tr>
<td>Eggs</td>
<td>266,000,000 Doz.</td>
<td>299,000,000*</td>
<td>12</td>
</tr>
<tr>
<td>Hogs</td>
<td>628,000 Head</td>
<td>672,000*</td>
<td>7</td>
</tr>
<tr>
<td>Milk Cows</td>
<td>164,000 Head</td>
<td>179,000*</td>
<td>9</td>
</tr>
<tr>
<td>Heifer Calves Saved</td>
<td>47,000 Head</td>
<td>51,000</td>
<td>9</td>
</tr>
<tr>
<td>Wheat</td>
<td>244,000 Acres</td>
<td>307,000*</td>
<td>26</td>
</tr>
<tr>
<td>Oats</td>
<td>562,000 Acres</td>
<td>641,000*</td>
<td>14</td>
</tr>
<tr>
<td>Hay</td>
<td>635,000 Acres</td>
<td>740,000*</td>
<td>17</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>55,000 Acres</td>
<td>62,000</td>
<td>13</td>
</tr>
<tr>
<td>Sorghum for Syrup</td>
<td>10,000 Acres</td>
<td>14,000</td>
<td>40</td>
</tr>
</tbody>
</table>

*Highest figures on record for South Carolina

Farmers Prepared for War Emergency

A review of agricultural development in South Carolina during the past 10 to 15 years of rapidly changing economic conditions shows that the farmers of the state have made marked progress in improving the production and quality of their crops and livestock, in bettering their marketing methods and facilities, and in adjusting their farming operations to meet the changes that have taken place during that period. Consequently, Pearl Harbor found the farmers of the state relatively well prepared to adjust their farms to a program of all-out production.

An agricultural crisis came at the close of the twenties and in the early thirties. South Carolina farmers found themselves faced with a dwindling export market for cotton, which for generations had been their main cash crop. The result was lower prices, decreased acreage, and a sharp loss of income from cotton. Consequently, the farmers of the state found it necessary to change the direction and improve the efficiency of their farming....by producing at home many items of food and feed that formerly had been bought with cotton money....by in-
creasing the yields per acre and lowering the cost of production of their cotton, tobacco, and other cash crops, in order that they might grow them at a profit in the face of continued low prices, and, in addition, by increasing livestock, dairy and poultry production, and otherwise developing new sources of income and expanding other sources which they already had, to replace income lost from cotton.

Numerous obstacles stood in the way of the farmers in making such adjustments, and made the going difficult....lack of experience in the production of new crops and livestock on the part of many farmers accustomed only to the production of cotton as a cash crop....poor land, caused by soil erosion and soil depletion following years of one-crop cotton farming and neglect of soil building practices, which had lowered the productivity of much of the soil of the state to the point below that at which profitable crop yields could be produced....acid soils which made it difficult to produce many of the food, feed, and soil building crops needed in the development of a diversified system of farming....the lack on the part of many farmers of the cash or credit necessary to make needed changes in their farming systems....and, the need for adequate market outlets for the products of diversification.

It was toward an approach to the solution of these problems that the Extension Service, representing the Clemson Agricultural College and the United States Department of Agriculture directed its program of educational work and service to the farm people of the state during this period. The main objectives of this program are listed as follows:....the establishment of a diversified agriculture on an economically sound basis which would adequately supply the food and feed requirements on the farms of the state and at the same time provide sources of cash income....the training of farmers to become expert in the production, standardization and marketing of their products in order that they may operate their farms economically and efficiently, and be able to meet competition from other areas....the development of adequate marketing facilities for farm commodities produced for sale....and assistance to other federal governmental agencies created to assist farmers with specific problems, in the establishment of their activities and the conduct of the educational programs necessary to acquaint farm people with their functions.

These were the objectives of the extension program in the years leading up to 1942, and these objectives, adjusted to the emphasis and intensified as to the effort, made up the 1942 extension wartime program.

Extension Activities and Results in 1942

The program of Extension work is aimed at the improvement of South Carolina agriculture and farm home conditions, and is a matter of continuous development.... The Extension Service plans and conducts this program with the cooperation of the State Agricultural Committee
and 46 county agricultural committees made up of representative farm men and women selected by the farm people themselves.... In addition, 8,746 voluntary farm and home leaders representing 93 percent of the farm neighborhoods in the state assist in developing and carrying out the program.

**Agricultural Economics and Farm Management:** 653 outlook meetings attended by 19,661 farmers....348 complete farm records analyzed and results sent back to the farmers....775 enterprise demonstration records analyzed and results made available to farmers....325 farm planning demonstrations....110 unit test demonstration farms in cooperation with TVA....

**Agricultural Engineering:** 6,565 farm building plans furnished farmers....assisted farmers in planning and building 69 general purpose barns....30 dairy barns....343 poultry houses....17 new-type sweet potato curing houses....5 government-type sweet potato curing houses....5 tobacco barns....142 hog houses....272 hog self feeders....147 brick brooders....74 trench silos....15 box silos....104 fire-heated hotbeds....529 home-made peanut pickers....62 home-made lime spreaders....18 irrigation systems....89 farm water systems....54 septic tanks....and 711 other farm buildings and structures....344 farm buildings remodeled or repaired....52 gins assisted in adjusting to gin long staple cotton....46 county farm machinery meetings with attendance of over 10,000 farmers....15 district harvesting machinery schools....125,000 copies of card, "Check Your Farm Machinery Now for Needed Repairs" distributed....2,926 farmers assisted in building hay curing racks....47 lespedeza seed harvesting demonstrations....56 syrup mills established.

**Agronomy:** 440 five-acre cotton demonstrations....over 12,000 since 1926....1,468 soil samples submitted for analysis....256 corn production demonstrations....98 demonstrations in production of oats....92 with barley....56 with tobacco....43 with sugar cane....196 with soil building crops....133 on production and curing of hay crops....393 with legumes for seed....50 with peanuts....218 with annual grazing crops....163 rotation demonstrations....81 silage demonstrations....383 permanent pasture demonstrations....18,778 acres permanent pasture improved through recommended practices....117,672 tons ground lime-stone placed with farmers as AAA conservation material and otherwise....77 agronomy tours and field meetings....201 county and community fertilizer meetings....53 groups, including 7,399 farmers organized for cotton grade and staple service.

**Dairying:** Farmers assisted in obtaining 207 selected purebred dairy bulls....1,590 purebred dairy bulls in use on South Carolina farms....599 purebred and grade dairy cows and heifers placed with farmers....52 D. H. I. A. demonstrations....59 cream routes, cream stations and milk routes operated with cooperation of Extension Service....199 major 4-H
calf club demonstrations....8 county dairy schools....9 forage schools ....assisted in establishing and maintaining markets for milk products to value of $430,770.

Crops Insects and Diseases: 27 demonstrations dust treatment of cotton seed....estimated 66,253 farmers treated cotton seed for 770,775 acres....107 demonstrations seed treatment small grains....133 demonstrations boll weevil control....14,370 farmers assisted with miscellaneous insect problems....95 rodent control demonstrations....program to encourage early fall cotton stalk destruction to control boll weevil ....21 fence post preservation demonstrations.

Beekeeping: 35 bee yard management demonstrations.... 67 transferring demonstrations.... 101 requeening demonstrations....assistance to queen breeders and shippers of package bees....

Farm Forestry: 54 selective cutting demonstrations....3,712 farmers practicing selective cutting of farm woodlands....40 tree thinning demonstrations....2,645 farmers thinning forest trees according to recommendations....294 tree planting demonstrations....2,141 farmers planting seedling trees....744,237 seedling trees planted on farms in 1942 ....20 woodland management demonstrations....94 demonstrations timber estimating and log scaling including 17,139,000 board feet of standing timber....farmers assisted in marketing timber products to value of $401,980.

Horticulture: 28 home orchard demonstrations....885 home garden demonstrations....estimated increase of 30 percent in number home gardens on farms in 1942 over 1941....50 percent increase in number home gardens in towns and villages....21 commercial orchard demonstrations....193 with sweet potatoes....10 with Irish potatoes....5 with truck and market gardens....34 with cucumbers....7 with tomatoes....29 with orchard cover crops....monthly orchard letter to 15,000 peach growers....monthly garden letter to 20,000 leaders and farm families.

Livestock: Farmers assisted in obtaining 326 selected purebred boars and 574 purebred sows and gilts....32 hog feeding demonstrations....11 swine management demonstrations....269 selected purebred beef bulls placed with farmers....1,870 in use on farms in state.... assisted with 6 fat stock shows and sales....12 beef cattle feeding demonstrations....19 beef herd management demonstrations....156 major 4-H beef cattle club demonstrations....assisted farmers in marketing 1,558 cars of hogs for $2,507,239 and 8,027 head beef cattle for $514,968 making a total return of $3,022,207 for hogs and beef cattle ....67 meat cutting and curing demonstrations.

Marketing Farm Products: The Extension Service assisted farmers in state in marketing surplus farm products to value of $5,788,469....supervised Federal-State shipping point inspection on 8,205 cars fruits
and vegetables which brought grower-shippers $4,365,703....making total value of farm products marketed with assistance of Extension Service $10,154,172....assistance to 64 cooperative marketing organizations in state....assisted army in buying farm products....weekly market letters to county agents and vocational agricultural teachers....110 issues of county market news letters.

**Poultry:** 62 poultry flock demonstrations....188 chicken pox vaccination demonstrations....74 hatcheries assisted....5 turkey demonstrations....26 hatcheries and 382 poultry farms cooperating in National Poultry Improvement Plan....assisted farmers in marketing eggs to value of $161,582, and poultry to value of $239,465....a total return of $401,058....this movement of surplus poultry and eggs prevented breakdown of prices on markets of state during surplus poultry and egg season.

**Rural Electrification:** (In cooperation with Rural Electrification Administration) 137 communities aided in organizing to obtain rural electrification....223 electric brooder demonstrations....31 with electric hotbeds....25 with electric dairy equipment....37 with electric feed grinding equipment....1 with electrically heated sweet potato curing house.

**Soil Conservation:** (In cooperation with Soil Conservation Service) 4 soil conservation districts organized....making total of 17 including 42 of 46 counties in state....132 community meetings on soil conservation program....181 meetings at demonstrations....29 power terracing outfits terraced 17,232 acres on 936 farms....24,579 acres farmer built terraces constructed on 880 farms....243 demonstrations terrace outlet control....7,689 farms under soil conservation district agreement....drainage program started in coastal plains area of state.

**Four-H Club Work:** 1,206 Four-H clubs organized in state with 26,750 farm boys and girls enrolled....10,254 farm boys and girls enrolled in Food for Victory Program....1,771 trained in judging....9,818 in health....3,782 in fire and accident prevention....1,634 in wildlife conservation....1,247 in keeping farm accounts....936 in giving demonstrations....34 counties held 4-H club encampments with 2,123 four-H club members attending....4-H club members collected 1,289 tons of scrap metals and 186 tons of scrap rubber as contribution to war effort....4-H club boys produced farm products to the value of $141,074.

**Publications:** 13,534 newspaper articles....26 bulletins and circulars, and 8 information cards were published....779,657 copies of these distributed to farm people....5,159 circular letters....463 radio talks....203 farm tours held.

**Visual Instruction:** Showing of educational motion pictures at 134 meetings of farm people with attendance of 16,500 farm people....500 slides prepared and shown....263 photographs made for educational use.
The Extension home demonstration program for 1942 was mainly an emergency program designed to improve the welfare of the farm families of the state and aid them in making their greatest contribution to the war effort. Important objectives were the training of voluntary rural leadership, educational work in foods and nutrition, production and conservation of foods, clothing, girls’ 4-H club work, home management and house furnishings, child development, home marketing, poultry work.

Farm Women’s Organizations: 46 county councils of farm women, 649 home demonstration clubs with a membership of 13,502 farm women, home agents taught 54 nutrition courses with 1,042 women enrolled, 9 canteen courses to 328 women, first aid and nursing courses to 4,571 women, 6,369 method demonstrations given in home practices, 6,280 demonstrations in Better Farm Living practices.

Home Marketing demonstrations in grading and packing given to 8,048 farm women, 906 farm women assisted in marketing dairy products, 8,385 with sale of poultry and eggs, 6,867 with sale of canned goods, pork, baked products, cereals, flowers, handicraft, etc., total sales home products through 35 home demonstration club markets, cream and egg centers, to individual customers and otherwise amounted to $734,217.

Clothing demonstrations, including making, care and repair given in 453 rural communities, 2,584 farm girls and 3,562 farm women enrolled in clothing demonstrations. Farm women and girls made 15,000 articles of clothing for Red Cross, 866 sewing machines repaired at sewing machine clinics.

Home Management and House Furnishings demonstrations carried out in 790 communities, 107 household accounts kept, 3,459 farm families assisted with making versus buying practices, 321 families assisted in planning and constructing buildings, 763 families assisted with plans for remodeling farm dwellings, 8,688 farm families took part in clean-up, mend-up campaign, 998 kitchens improved, 2,329 families improved house lighting, 3,588 improved storage facilities, 1,859 screened homes, 1,222 installed electric service, 1,459 improved home sanitation.

Food and Nutrition came in for greatly increased interest in 1942. 33,122 farm families were assisted by home demonstration agents in production of food for home use, 28,452 were helped with food preservation, 10,441 canned according to canning budget, 6,415,737 quarts food canned, 406,109 pounds dried, 30,930 farm families assisted in improving diets, 1,682 planted edible soybeans, 1,042 farm women took courses in nutrition.
Girls' 4-H Club Work: 10,066 farm girls enrolled in 4-H club work .... 5,446 had poultry projects, raising 169,849 chickens.... 6,225 grew gardens.... 623,298 quarts foods canned.... 6,108 were given health instruction.... 1,400 carried out clothing projects.... 1,100 did home improvement work.... 187 leadership meetings held.... 1,174 girls attended 4-H club encampments.... instruction given in first aid and nursing.... 4-H club girls also took part in salvage collection, sale war bonds and stamps, and fire prevention programs.

Poultry: 22,977 farm women given instruction in poultry raising.... 16 training meetings held in 13 counties in which 153 leaders were trained in poultry work.... 612 method demonstrations in poultry with 6,216 farm women attending.... 32 result demonstrations with turkeys.... 1,585 home demonstration club women raised 38,797 turkeys and sold $96,896 worth.... this represented average income of $61.12 per family.... 186 four-H girls had major poultry projects covering three years work.... made labor income of $1.96 per hen.

Community activities included assistance to 530 neighborhood and community groups with organization problems.... 612 neighborhoods assisted in improving recreational facilities.... 12 established community houses, club rooms or rest rooms.... 171 improved school or community grounds.... 224 assisted in providing library facilities.

Negro Demonstration Work

Farm Management: 68 outlook meetings with 5,374 farmers attending.... 279 farmers assisted in keeping farm records.... 134 assisted in keeping enterprise records.... organized farm planning instrumental in increasing food and feed production.

Agricultural Engineering: 2,096 Negro farmers assisted in planning and constructing and repairing farm buildings.... 83 farm water systems installed.... 8 septic tanks.... 37 sanitary toilets.... 704 Negro farmers assisted in repairing farm machinery.

Field Crops: Cotton improvement demonstrations in 147 communities.... Corn production demonstrations in 198 communities.... average yield 33.6 bushels corn per acre on demonstration.... 61 wheat production demonstrations.... 46 oat production demonstrations.... 11 farmers assisted in improving 180 acres permanent pasture.... 1,770 Negro farmers produced peanuts for oil.... 3 tobacco production demonstrations averaging 1,600 pounds per acre.

Livestock: Hog production demonstrations in 225 communities.... 1,478 Negro farmers raised hogs for first time.... 41 purebred boars and 54 purebred gilts placed with Negro farmers.... beef cattle demonstrations conducted in 183 communities.... 56 demonstrations in cutting, curing and canning meat....
Dairying: 440 Negro farmers had milk cows in 1942 for first time....860 Negro farmers assisted in marketing dairy products to value of $19,754....57 purebred dairy bulls placed with Negro farmers....

Horticultural Crops: 1,460 Negro farmers in 19 counties had home gardens for first time....26 sweet potato hotbeds operated.

Marketing: Negro farmers were assisted by Negro agents in marketing grain, hay, livestock, dairy products, poultry and eggs, fruits and vegetables and home products to value of $81,506.

Poultry: demonstration work carried out in 296 communities....1,890 Negro farm families had poultry flocks for first time.

Negro Boys' 4-H Club Work: Negro boys completed 2,902 demonstrations....produced crops and livestock to the value of $88,852....Negro 4-H club boys bought war stamps and bonds to the value of $1-966....sold $2,889 in bonds and stamps to others.

Negro Home Demonstration Work

Community and Neighborhood Organization: A total of 288 communities and 528 neighborhoods were organized for the Better Farm Living Program....3,024 4-H club members enrolled in the Food for Victory Program....

Foods and Nutrition: 26 cooking schools attended by 2,526 Negro farm women....6,237 Negro farm families assisted in improving diets....5,928 assisted with food preparation....7,007 assisted in improving food supply....11,577 meals planned by Negro 4-H club girls....assistance given 11,343 Negro families with home gardens....14,263 assisted with food preservation....784,725 quarts foods canned by adults and 442,172 by 4-H club girls....4,463 Negro women were taught how to prepare milk dishes....3,193 learned how to make cheese.

Poultry: 7,320 Negro farm women assisted with poultry problems....3,242 Negro four-H club girls grew out 39,904 chickens.

Health and Sanitation: 862 Negro farm homes screened....364 sanitary toilets built....1,216 yards drained....623 wells covered....881 Negro women taking home nursing courses....8,979 persons assisted with other health problems.

Clothing: 4,498 Negro families assisted in making clothing....4,802 assisted in selection of clothing and textiles....6,574 assisted in care, renovation and remodeling of clothing....2,205 assisted with clothing accounts.

Home Marketing: Negro home demonstration agents assisted farm families in marketing home products to the value of $66,625.