A total of 1,554 farm boys were taught operation and care of tractors at 4-H summer camps.
SIXTY-SECOND ANNUAL REPORT

of the

BOARD OF TRUSTEES

of

THE CLEMSON AGRICULTURAL COLLEGE

to the

GENERAL ASSEMBLY OF SOUTH CAROLINA

1951

RECORD
The Clemson Agricultural College

Published quarterly by The Clemson Agricultural College, Clemson, S. C. Entered as second class matter April 25, 1905, at the Post Office at Clemson, S. C., under the Act of July 16, 1894, now superseded by the Act of August 24, 1912.
LETTER OF TRANSMITTAL

Members of the General Assembly
Columbia, South Carolina

Gentlemen:

In behalf of the trustees of The Clemson Agricultural College, we are pleased to transmit herewith for your consideration the report of President R. F. Poole for the fiscal year July 1, 1950 to June 30, 1951.

The Clemson College Board is well pleased with the operation of the college as well as its several agencies.

Respectfully submitted,

R. M. Cooper
President, Board of Trustees

December 1, 1951
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<th>TABLE OF CONTENTS</th>
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REPORT OF THE PRESIDENT OF THE COLLEGE

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

To The Honorable Robert M. Cooper
President, The Board of Trustees

I have the honor to present to you the sixty-second report of the President of Clemson College. In addition to the reports of the public service activities, I am including short statements regarding activities of the various schools of the college.

In 1950-51 there were 2921 students enrolled in the first semester and a total enrollment of 3091 for the year. Thus far this session we have enrolled 2788 students.

Graduates awarded degrees during the year were as follows: School of Agriculture 133, School of Arts and Sciences 55, School of Chemistry 3, School of Education 72, School of Engineering 163, School of Textiles 168.

The enrollment of 2788 this semester includes 2711 undergraduate students who are majoring in the various schools as follows: Agriculture 704, Arts and Sciences 193, Chemistry 30, Education 260, Engineering 848, Textiles 676. It is estimated that more than 75 graduate students will be enrolled during the year.

Of the present enrollment 78.3 percent of the students are from South Carolina, 15.5 percent are from other southern states, and 6.2 percent from other sections.

In the School of Agriculture the courses offered are designed to fit students for practical farming; for such positions as that of teacher, investigator, or extension worker; or for service in a wide variety of pursuits related to agriculture.
WHERE THE CLEMSON STUDENTS COME FROM

FIRST SEMESTER 1951-1952

SOUTH CAROLINA: 2182
NORTH CAR. & GEORGIA: 304
OTHER SOUTHERN STATES: 129
OTHER STATES: 173
TOTAL ENROLLMENT: 2788

SOUTH CAROLINA: 78.3%
OTHER SOUTHERN STATES: 15.5%
OTHER SECTIONS: 6.2%
Some high spots of the year include: (a) The big demand for graduates in agricultural economics and the excellent records made by these graduates; (b) The completion and occupation of the new agricultural engineering building and resulting greater efficiency in that department; (c) The marked increase in the number of students majoring in animal husbandry; (d) The short course given in the Dairy Department to train technicians needed for the rapid growth of artificial insemination work in the state; (e) The offering of graduate work to students in horticulture; (f) The constant demand from the poultry industry for graduates trained in poultry science.

The principal function of the School of Arts and Sciences is to teach all students mathematics, physics, English, foreign languages, and the social sciences. Training in these fields is needed by students as foundation for specializing in various professional fields and as broadening general education.

The best trained and most efficient staff the School of Arts and Sciences has ever had is giving superior work in the classroom and in extracurricular assignments. Many of the staff are diligent in further working towards advanced degrees.

The present curriculum in arts and sciences has been operating for five years. It has served a number of students who want to come to Clemson for various reasons but who do not want to major in one of the technical fields, and also a number of students of good college material who begin but decide they are misfits in various technical majors. This curriculum is important also in stimulating and vitalizing the members of the staff of the School of Arts and Sciences, who spend most of their time teaching large groups of students in basic subjects required by the other schools of the college.

One principal limitation to greater efficiency in the School of Arts and Sciences is the lack of physical facilities, especially classroom and office space.
The **School of Chemistry and Geology** is now occupying its up-to-date new building. Much of the time and energy of its faculty has been given recently to the new building and the task of transferring material and activities from the old quarters.

With the reintroduction of major courses in agricultural chemistry and in geology, and the addition of competent staff members for these courses, the school has been reorganized with three departments: Chemistry, agricultural chemistry, and geology.

Towards better equipment of the new building, the General Education Board has offered a sum of $50,000 provided matching funds can be secured from other sources. It is hoped that friends of the college may be found to supply this need.

Noteworthy highlights of the year are: Progress in the graduate program, with several M.S. degrees awarded in June, 1951; and organization of a Student Affiliate chapter of the American Chemical Society through efforts of faculty members.

With more chemical industries moving into the state, the calls for chemists are so numerous that Clemson graduates in chemistry are not sufficient to meet demands.

The **School of Education** is continuing and improving its training of college students for prospective teachers, its in-service training of teachers now employed, and its graduate training for those who desire an advanced degree. There are three departments conducting this work: Education, vocational agricultural education, and industrial education.

Graduate training for teachers has a good enrollment in both regular and summer terms, and more graduate courses are being offered during the summer in lines most appropriate for development at Clemson.

Enrollment in the **School of Engineering** is expected to increase. To meet the situation, pressing needs now apparent are: More space in order to use efficiently equipment now at hand, and improved salaries to help secure and hold competent staff members.
Special mention should be made of the following programs of several departments:

Expansion of the the work in ceramic engineering, especially by installing laboratory equipment, locating ceramic mineral deposits in the state, constructing a demonstration kiln at Clemson, developing the use of South Carolina kaolins in whiteware, etc.

Steps to get the Architectural Department accredited, and plans to do architectural research that will be of service to the college and to the state.

Expansion in chemical engineering seeking to place Clemson in the forefront of Southern institutions in this line.

Stressing the research work in mechanics and hydraulics, especially in public services to state agencies and in custom service, so far as funds and conditions allow.

The training of teachers, through wood shop courses, for teaching industrial arts in the high schools of the state.

The research work conducted by the Engineering Experiment Station has made satisfactory progress. A bulletin on Rammed Earth Construction, for which there has been heavy demand, has been revised and reprinted.

An enrollment of 650 students during the last school year gave the School of Textiles the largest number of students among all textile schools during the past two years. About 150 students were graduated in textiles during 1950.

The efficiency of the school continues to improve. The way the textile industry, through the Sirrine Foundation and by direct donations, has come to the aid of our textile school has invigorated the entire staff. Donations have provided for the largest expansion of equipment the school has ever had, amounting to $250,000 in money and kind. The largest expansion will be in the Dyeing and Finishing Department, but all departments will be increased.

Important research projects in textiles include: (a) Contracts with the U. S. Department of Agriculture for processing cottons and for use of electrostatic electricity in opening and cleaning cotton; (b) The measurement of cotton fineness and maturity; (c) A
study of the spread of cotton fungus in the state; (d) Developing a sizing compound for spun nylon; (e) Expansion of X-ray research.

The new spinning technique developed last year is being considered for extensive tests in several mills; and the fiber-strength testing machine developed here has met with good favor and is likely to be placed on the market.

The Graduate School at Clemson was organized as such this year for the first time. Work leading to advanced degrees, however, has been offered for a number of years under the supervision of a Committee on Graduate Studies.

The function of the Graduate School is to provide highly trained, specialized technologists capable of performing scholarly research and instructional activities in southern industry, agriculture, and educational institutions. Courses of graduate study are offered as an integral part of the academic and research activities of the various departments and not as a separate distinct unit. The emphasis in graduate student training is placed on research methods and procedures. Clemson is particularly well equipped to develop a strong graduate program in the technological fields. The fields in which Clemson is best equipped and in which it is concentrating include the agricultural sciences, chemistry, engineering, textiles, physics and the various applications of these fields.

The objectives of the Military Department are: (a) To maintain and operate the ROTC units of the several Army branches and the Air Force and to present the ROTC programs of instruction effectively; (b) To produce junior officers of high qualifications and attributes; (c) To assist the President of the College in the administration and discipline of the student body and in producing better American citizens through example and military training. Clemson students are under continuous military supervision.

The Clemson ROTC unit received a “Satisfactory” rating on the inspection in 1950. Lieutenant General Hodge, Commanding General, Third Army, told the corps of cadets at the time of his review: “Clemson has produced some superior officers, and I can see today there has been no let down.”
A recent instance of the fine cooperative spirit of the students was in their wholehearted response to the Red Cross call for volunteer donors of blood, when Clemson students gave in a two and a half day period a total of 820 pints of blood.

The several Army branches and the recently established Air Force unit at Clemson conduct their ROTC programs separately but within the Military Department under the Commandant of Cadets.

R. F. Poole, President
REPORT OF THE TREASURER
A. J. Brown, Secretary-Treasurer

THE CLEMSON AGRICULTURAL COLLEGE OF SOUTH CAROLINA

COLLEGIATE ACTIVITIES

Fiscal Year July 1, 1950 to June 30, 1951

INCOME

| Legislative Appropriation: | 
|----------------------------|---|
| (Revenue from Operation of Clemson College Transmitted to State of South Carolina) | 
| Tuition & Matriculation Fees | $404,350.19 |
| Session 1950-51 | 
| Privilege Fertilizer Tag Tax paid to State of South Carolina | $250,437.26 |
| From Other State Funds | $701,212.55 |

<table>
<thead>
<tr>
<th>Total Legislative Appropriation</th>
<th>$1,356,000.00</th>
</tr>
</thead>
</table>

| Federal Funds | 45,841.20 |
| Endowment Funds | 9,266.36 |
| Miscellaneous—Rents, Sales & Service | 98,645.52 |

| Student Fees: | 
|------------------|---|
| Laboratory Fees | $133,071.46 |
| Class Maintenance Fees | 46,806.75 |
| Summer School 1950 | 43,926.75 |
| Summer School 1951 | 48,239.04 |

| Sales and Service Collegiate Departments | 472,642.76 |
| Auxiliary Enterprises | 940,232.03 |

| Total Income Collegiate Activities | $3,194,671.87 |
EXPENDITURES

July 1, 1950 — June 30, 1951

A-1 Salaries $1,305,223.26
A-2 Wages 401,722.09
B-2 Travel 24,041.43
B-3 Telephone & Telegraph 9,719.45
B-4 Repairs 132,298.03
B-6 Heat, Light, Water, Coal & Power 174,153.22
B Contractual Services 10,142.47
C Supplies 918,053.18
D Other Charges 195,713.82
G-7 Equipment 67,539.82
H-3 Improvements 4,325.56
H-4 Transfers 16,101.35

* Total Expenditures $3,259,033.68

* Includes $54,815.89 for Fertilizer Inspection and Analysis and $1,000,932.25 for Student Subsistence, Room, Laundry, etc.

STUDENT ACTIVITY FUNDS

Receipts:
Athletic Association $342,039.11
Taps 21,939.16
Tiger 13,905.39
YMCA 62,970.47
Concert Series 19,521.46
Clemson Alumni News 3,108.37


Expenditures:
A-1 Salaries 80,517.28
A-2 Professional Services & Wages 44,180.55
B-2 Travel 82,340.84
B-3 Telephone & Telegraph 2,486.82
B-4 Repairs 8,543.32
B Other Services 53,982.60
C Supplies 59,103.07
D Fixed Charges 93,221.78
G Equipment 9,635.05
H Buildings 4,501.71
Investments 42,990.39

$ 481,503.41
### SPECIAL STATE APPROPRIATIONS

**Appropriations:**

- Clemson College — For the construction of buildings or the renovation or repair of existing buildings, and equipment therefor
  - Chemistry Building: $401,545.50
  - Utilities of Buildings: $256,107.64
- Clemson College — For the construction of an Agricultural Engineering Laboratory and the equipment therefor: $150,365.94

**Expenditures:**

- B-4 Repairs: $199,286.73
- G Equipment: $8,281.69
- H-3 Improvements: $43,181.86
- H-2 Buildings: $557,268.80

**STUDENT BANK ACCOUNT**

- Balance on Hand July 1, 1950: $35,806.81
- Deposits Current Year: $480,141.90
- Checks Paid Current Year: $482,540.36
- Balance June 30, 1951: $33,408.35

**SMITH-LEVER AGRICULTURAL EXTENSION WORK**

**Receipts:**

- Brought Forward: $6,337.41
- Appropriations: Federal: $869,996.73, State: $592,500.00

**Expenditures:**

- A-1 Salaries: $1,168,325.40
- A-2 Wages: $9,150.30
- B-2 Travel: $187,278.02
- B-3 Telephone & Telegraph: $17,076.98
- B-4 Repairs: $4,208.52
- B Other Services: $23,067.58
- C Supplies: $39,778.28
- D Fixed Charges: $2,210.62
- G Equipment: $13,043.96

**Carried Forward: $4,694.48**

**Total: $1,468,834.14**
### MISCELLANEOUS STATE APPROPRIATIONS
#### EXTENSION SERVICE

**Receipts:**
- State Soil Conservation Committee $4,407.55
- Camp Long Appropriation $2,400.00
- Camp Cooper Appropriation $2,400.00
- State Marketing Commission $11,430.00

**Expenditures:**
- A-1 Salaries $8,419.24
- A-2 Wages $2,819.80
- B-2 Travel $5,664.54
- B-3 Telephone & Telegraph $34.68
- B-4 Repairs $1,064.85
- C-6 Heat, Light, Water & Power $304.35
- B Other Services $8.63
- C Supplies $1,278.22
- D Fixed Charges $467.62
- G Equipment $575.62

Total Expenditures: $20,637.55

---

### SOUTH CAROLINA EXPERIMENT STATION

**Federal Funds**

**Receipts:**
- Adams Fund $15,000.00
- Hatch Fund $15,000.00
- Purnell Fund $60,000.00
- Bankhead-Jones Fund $69,224.19
- Research & Marketing (Regional) Fund $26,530.50
- Research & Marketing (Non-Regional) Fund $88,855.84
  **Total:** $274,610.53

**Expenditures:**
- A-1 Salaries $223,763.97
- A-2 Wages $2,796.90
- B-2 Travel $6,180.15
- B-3 Telephone & Telegraph $1,326.17
- B-4 Repairs $7,179.90
- B-6 Heat, Light, Water & Power $1,812.86
- C Supplies $24,338.91
- D Fixed Charges $112.00
- G Equipment $13,563.29
- H-3 Improvements $1,696.95

Total Expenditures: $286,007.19
## SOUTH CAROLINA EXPERIMENT STATION

### State Funds

#### Receipts:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Research</td>
<td>$135,000.00</td>
</tr>
<tr>
<td>Crop Pests &amp; Diseases</td>
<td>$33,000.00</td>
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<tr>
<td>Coast Station</td>
<td>$9,500.00</td>
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<tr>
<td>Edisto Station</td>
<td>$94,500.00</td>
</tr>
<tr>
<td>Pee Dee Station</td>
<td>$47,000.00</td>
</tr>
<tr>
<td>Sandhill Station</td>
<td>$9,450.00</td>
</tr>
<tr>
<td>Truck Station</td>
<td>$32,500.00</td>
</tr>
<tr>
<td>Peach Research</td>
<td>$12,000.00</td>
</tr>
<tr>
<td>Research on Lice &amp; Tobacco</td>
<td>$19,000.00</td>
</tr>
<tr>
<td>Water Management</td>
<td>$10,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$401,950.00</strong></td>
</tr>
</tbody>
</table>

#### Expenditures:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$215,379.05</td>
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<tr>
<td>A-2 Wages</td>
<td>$87,453.76</td>
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<tr>
<td>B-2 Travel</td>
<td>$7,483.08</td>
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<tr>
<td>B-3 Telephone &amp; Telegraph</td>
<td>$1,641.91</td>
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<tr>
<td>B-6 Heat, Light, Water &amp; Power</td>
<td>$2,316.70</td>
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<td>B-4 Repairs</td>
<td>$11,125.52</td>
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<tr>
<td>B Other Services</td>
<td>$2,026.38</td>
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<tr>
<td>C Supplies</td>
<td>$52,242.86</td>
</tr>
<tr>
<td>D Fixed Charges</td>
<td>$5,583.37</td>
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<tr>
<td>G Equipment</td>
<td>$16,697.37</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$401,950.00</strong></td>
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## SOUTH CAROLINA EXPERIMENT STATION

### Farm Products Fund

#### Receipts:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Balance Brought Forward</td>
<td>$72,096.53</td>
</tr>
<tr>
<td>Farm Products</td>
<td>$460,435.80</td>
</tr>
<tr>
<td>State Marketing — Reimbursement</td>
<td>$14,572.71</td>
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<tr>
<td>Market Information — Reimbursement</td>
<td>$18,982.52</td>
</tr>
<tr>
<td>S. C. Foundation Seed Work</td>
<td>$25,000.00</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$591,087.56</strong></td>
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</tbody>
</table>
### THE CLEMSON AGRICULTURAL COLLEGE

#### Expenditures:

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$36,573.66</td>
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<tr>
<td>A-2 Wages</td>
<td>$126,931.04</td>
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<tr>
<td>B-2 Travel</td>
<td>$4,624.73</td>
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<tr>
<td>B-3 Telephone &amp; Telegraph</td>
<td>$2,047.68</td>
</tr>
<tr>
<td>B-4 Repairs</td>
<td>$29,643.59</td>
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<tr>
<td>B-6 Heat, Light, Water &amp; Power</td>
<td>$2,981.55</td>
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<tr>
<td>B Other Services</td>
<td>$14,102.69</td>
</tr>
<tr>
<td>C Supplies</td>
<td>$203,836.53</td>
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<td>D Fixed Charges</td>
<td>$19,266.00</td>
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<tr>
<td>G Equipment</td>
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<tr>
<td>H-3 Improvements</td>
<td>$19,169.44</td>
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<td>H-2 Buildings</td>
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<tr>
<td>Transfers</td>
<td>$321.40</td>
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<td><strong>Total</strong></td>
<td><strong>$544,668.44</strong></td>
</tr>
</tbody>
</table>

**Balance Carried Forward** | **$46,419.12** | **$591,087.56**

#### LIVESTOCK SANITARY WORK

**Receipts:**

- Balance 6/30/47 Brought Forward: $7,900.18
- State Appropriation: $126,500.00
- Sales & Service: $45,373.06

**Total Receipts:** $179,773.24

**Expenditures:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$65,427.33</td>
</tr>
<tr>
<td>A-2 Wages &amp; Professional Services</td>
<td>$31,534.50</td>
</tr>
<tr>
<td>B-2 Travel</td>
<td>$15,786.73</td>
</tr>
<tr>
<td>B-3 Telephone &amp; Telegraph</td>
<td>$1,098.47</td>
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<tr>
<td>B-4 Repairs</td>
<td>$193.32</td>
</tr>
<tr>
<td>C Supplies</td>
<td>$46,546.73</td>
</tr>
<tr>
<td>D Fixed Charges</td>
<td>$9,301.01</td>
</tr>
<tr>
<td>G Equipment</td>
<td>$9,885.15</td>
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**Total Expenditures:** $179,773.24
To The Board of Trustees  
The Clemson Agricultural College  
Clemson, South Carolina  

Gentlemen:  

The Board of Visitors is very appreciative of the opportunity which has been given it to make a very thorough inspection of the plant and facilities of Clemson College. We have enjoyed the finest cooperation of all officials and department heads in making this study and through the well-planned tours we have been able to see first hand the workings of the institution in its many and varied departments. We desire especially to thank Mr. J. H. Woodward, who has directed our movements, for his unfailing courtesies to us.  

The Board again desires to point out the need for a more adequate housing of the School of Arts and Sciences. It is recognized today that one of the weaknesses of graduates of technical and engineering colleges is the lack of training in the arts of communication. Clemson is fortunate in having a strong faculty in this department but is greatly handicapped by a lack of space for its classrooms and more particularly a lack of offices for the counseling and guidance of students. A new Arts and Sciences building should be erected as soon as funds are available.  

We recommend that additional emphasis be placed upon the effort to secure an animal science building to house the Animal Husbandry and Dairy Departments. The present facilities are inadequate and antiquated. The great trend toward grassland farming which is reflected in the tremendous increase in animal husbandry students should be ample justification for this recommendation.  

The Board wishes to commend the Military Department on its efficient work and the apparent high morale of the Cadet Corps. This is of supreme importance in this time of world unrest. In this connection, we recommend that immediate steps be taken to secure an adequate and suitable armory for this program. It is our
opinion that funds for such purposes might be obtained by proper contact with the Defense Department of the Federal Government. Such funds are being expended in numerous places in our state for the use of much smaller military units than the one at this college.

It is the belief of the Board that present building facilities are inadequate for present needs and certainly for expected needs during the coming years. It would perhaps be an opportune time to note that the present engineering building was built in 1926 at a time when approximately 500 students were enrolled in the School of Engineering. The present low base enrollment appears to be 1000 students with an expected increase to about 1800 students in the next six to eight years.

It is becoming increasingly important that a high standard of engineering training in its several branches must be maintained to meet demands being brought about by the rapid industrial growth of the state. To meet these needs, the well-qualified staff needs space to house required equipment properly in order that most efficient use may be made of facilities now on hand and others needed to round out the desired program. It is the recommendation of the Board of Visitors that early action be taken by the Board of Trustees to provide for the modest requests proposed by the engineering department.

We feel that the salaries of faculty members in many cases are substandard and we recommend that immediate steps be taken to provide a salary schedule comparable to other technical and engineering institutions.

We recognize that one of Clemson's primary purposes is to carry on a program of research which will not only solve the problems arising from a new system of agriculture, but will point the way to more profitable fields. We recommend that every effort be made to obtain necessary funds for the expansion of this program. We also recommend that a careful study be made of the entire Agricultural School with a view to closer coordination of teaching, research, and extension activities.

We wish to congratulate the management on the very fine water-treating plant and the new steam-generating plant. Both of these units are modern and up-to-date. We were particularly im-
pressed with the forethought of the planners of the water plant in providing facilities for classes to be held at the plant so that instruction could be given in the most modern methods of treating water for domestic use, both in the filtering and chemical treatment of same. We were pleased to see that in the construction of the heating plant space had been provided for the installation of an additional unit if and when needed. In our rounds of the different departments we particularly noted the good condition of the buildings and equipment. Some valuable units of equipment, we understand, are of recent acquirement and of latest design and efficiency.

We wish especially to commend those responsible for the splendid condition of the dining facilities and the excellence of the food being served.

We commend the college for the timely beginning of the study and development of the important clays of the state. With the availability of natural gas in our state we feel there is a great possibility in the field of ceramics. We strongly urge that this department work very closely with the Research and Development Board in securing new industries to use these natural resources. We recommend that steps be taken to enlarge the knowledge of ceramics.

The Board of Visitors wishes to commend the efforts of those who have been instrumental in making possible the completion of long-needed hotel facilities. Clemson House has received the enthusiastic approval of everyone who has seen it and is a most attractive asset to the college as well as the community. It is the belief of the Board that the accommodations provided in Clemson House will assist substantially in helping to bring various groups to the college for mutual gain. It is hoped therefore that the program in hand for promoting a close relationship between the college and interested groups may thus be expanded through the use of these excellent facilities.

The Board had occasion to witness a traditional “pooling” incident in the beautiful pool at Clemson House. While we are not opposed to such youthful pranks, we do feel that firm steps should be taken to see that Clemson House is not abused as a result of such pranks.
The Board wishes to take note of the generous contributions being made to Clemson by Mr. Charles E. Daniel. We, as representatives of the people of South Carolina, are deeply grateful to him.

The Board commends the J. E. Sirrine Textile Foundation and other friends of Clemson for their generous contributions to the facilities of the Clemson School of Textiles. We recognize their importance to the textile industry of the state and therefore recommend that every effort be made to provide the very best in textile education and service to this industry.

We urge that the program aimed at control of insects and diseases be pressed vigorously. It is also urged that every effort be made to increase the work being done for quality control of insecticides being sold in South Carolina.

The Board was very much impressed with the financial report as presented by the Business Administration. It is to be regretted that the state has provided only sufficient funds for existence with the strictest economy. We commend the administration for their fine work and hope that they will not lose courage but continue their efforts for larger appropriations in order that the college may keep pace with similar institutions in other states.

We are particularly proud of the new chemistry building. It is hoped that sufficient funds may be raised to fully complete the building and to equip it in a deserving manner. It is further recommended that steps be taken to renovate the old chemistry building for use by other departments.

It is our considered opinion that present hospital facilities are inadequate and that steps should be taken at the earliest practicable date to secure adequate hospital facilities.

It is our opinion that future Boards would gain some valuable information and helpful suggestions by arranging an interview with student representatives from each class of the student body. We also think that a brief should be prepared in advance by each department head for early study by members of future Boards.

The Board is unanimous in its desire to commend the splendid work of Dr. R. F. Poole as President of the college. We are convinced that under his guidance the college is reaching high ground
in the service it is rendering. We have also been impressed with the spirit of the faculty, members of the administration, and of the enthusiasm for the college and for their work, all of which indicate that the college is being conducted in the way that the people of South Carolina would have it conducted.

The Board recommends to the Trustees the appointment of Mr. Bachman S. Smith as the hold-over member of the Board of Visitors for 1952.

Respectfully submitted,

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<thead>
<tr>
<th>Don. V. Richardson</th>
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<td>Hold-Over Member</td>
<td>George C. Rogers</td>
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<td>E. B. Baskins</td>
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<td>Harold C. Booker</td>
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<td>Robert M. Erwin</td>
<td>L. A. Walker, Sr.</td>
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<td>W. N. Henderson</td>
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<td>Harmon Howorth</td>
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The Department of Fertilizer Inspection and Analysis collects official fertilizer samples for analysis and checks for compliance with provisions of the law. About 40 million dollars worth of fertilizer and fertilizer material, not including limestone, is used in South Carolina annually.

Since a large percentage of fertilizer dealers are also insecticide dealers, the inspectors collect fertilizer and insecticide samples at the same time. Below is a brief summary of the activities of the department.
Tons of fertilizer for which tags were furnished ___982,916*
Number of samples procured _______________________ 5,292
Number of bags represented by each sample _______ 154
Number of bags underweight in dealers’ warehouses 10,326
Average shortage per bag, lbs. _____________________ 2.85
Number of bags with other irregularities __________ 9,788
Number of bags underweight on farms ____________ 5,508
Pounds of fertilizer refunded to farmers because of short weight _____________________________ 80,597
Number of toxicological examinations _____________ 11
Number of samples of water analyzed _____________ 53

Realizing the important role played by fertilizer manufacturers, dealers, and salesmen in making for a sound, progressive agricultural program, Clemson College sponsors annual meetings for this group. In May, 1951, this group, consisting of 275, visited the Truck Experiment Station at Charleston and the Coast Experiment Station at Summerville.

* 9.6 percent more than for 1949-1950.
REPORT OF THE LIVESTOCK SANITARY DEPARTMENT

R. A. Mays, Director

During the year 82,087 blood samples from cattle were tested for Brucellosis in the laboratory. Three hundred and twenty-three herds of cattle are classified as Brucellosis-Free Accredited. Infected herds are placed under quarantine and tested at frequent intervals.

Counties classified as Modified Accredited Areas are: Aiken, Allendale, Bamberg, Barnwell, Cherokee, Chester, Lancaster, Newberry, Saluda, Spartanburg, and York. Eleven other counties are in the process of being tested for possible recommendation for the modified status. When Brucellosis reactors are found, if the owner is in position to comply under the test and slaughter plan, state and federal indemnity payments are made.

Auction Markets: The Technical Livestock Committee has set up rules and regulations for the operation of the public livestock markets with the ultimate aim of reducing the infectious and contagious diseases of livestock sold through this source. Excellent cooperation is received from most of the operators and purchasers.

Livestock Inspectors: Two livestock inspectors of the department assist in the inspection and supervision of public livestock markets, advise the owners in sanitary problems, and check violations of all state regulations on the control and eradication of contagious and infectious livestock diseases.

Rabies: During the year there were several sporadic outbreaks of rabies. As a result of these outbreaks and the state law requiring inoculation of dogs to prevent the disease, more dogs were treated against rabies than in any other year in the state's history.

Hog Cholera: The variant type of hog cholera virus prevalent over the United States is resulting in unusually heavy losses following treatment of hogs against cholera. New types of vaccine are being developed in the hope that the unfavorable post-vaccina-
tion reactions will be largely eliminated. Veterinarians employed by the department treated 148,976 hogs for 8,379 owners.

**Tuberculosis:** The state continues to be classified as a Tuberculosis Modified Accredited-Free Area. We have in the state 159 Tuberculosis Accredited herds. During the year 46,472 tests for tuberculosis were conducted, and 51 animals giving positive reaction were slaughtered under state or federal supervision, with indemnity payments according to law.

**Community, County, and State Fairs:** The department assists livestock owners in testing animals for fairs and in testing animals sold through promotional breeders’ sales, in order that they may meet the health requirements.

**Educational:** Department representatives made many talks on animal and poultry disease problems, distributed printed information on preventive measures and treatment, and showed films on Brucellosis and other current disease problems.

**A New Mixed Bacterin:** A new mixed bacterin has been made available which gives resistance against black-leg, malignant edema, and hemorrhagic septicemia at one injection. This bacterin (vaccine) will be of great assistance to cattle growers.

**Laboratory Report:** An increase of 55 percent in the number of tests made and specimens examined definitely indicates that the poultry and livestock industries use this available service to a much greater extent than formerly. A summary of the laboratory examinations during the year shows a grand total of 185,660 examinations for various diseases.
Crop Pests Introduced: Four destructive pests have come into the state in recent years: The Japanese beetle, the white-fringed beetle, the sweet potato weevil, and the phony peach disease. Any of these if uncontrolled might become a very serious pest.

The Japanese beetle is a pest of lawns, pastures, corn, peaches, grapes, apples, and many ornamental trees and shrubs. It has been found at Greenville, Spartanburg, and Florence.

The white-fringed beetle attacks ornamentals and most field crops, including cotton, corn, tobacco, peanuts, and soybeans. A vigorous effort has been made to eliminate the threat of this pest by the use of DDT applied at 25 pounds per acre.

The spread of the sweet potato weevil has been confined to Charleston County. Its spread through the sweet potato producing areas would cripple an 8-million-dollar industry.

The phony peach disease has been widely distributed in South Carolina orchards. Healthy trees are infected by insects that have fed on diseased trees.

The Crop Pest Commission has cooperated with the U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine, in the control of these pests to the extent of the limited funds available.

Beekeeping: Over 8,000 colonies of bees are inspected each year to prevent the spread of diseases. Beekeepers are encouraged to transfer their bees to modern equipment where efficient inspection service can be given.

Nursery Inspection: During the year 250 nurseries were inspected, 34 of which are new. Greenhouses, sweet potato plantbeds, and Irish potato seedstocks were included in the regular plant inspection service.
Registration of Insecticides: Sixty-nine companies registered 933 different products sold to South Carolina farmers. This service protects agriculture against the distribution of insecticides and fungicides not satisfactory for the control of insects and diseases for which they are sold. Over 450 samples of material were taken and analyzed and tested for their effectiveness in destroying insects.

Machine used to apply DDT to property infested by white-fringed beetle.
REPORT OF THE EXPERIMENT STATION

H. P. Cooper, Director

The South Carolina Agricultural Experiment Station organization includes the central unit at Clemson and the five substations located in the different agricultural regions of the state. The central station staff works on problems of statewide interest and on the problems of particular interest to the Piedmont area.

The five substations devote most of their research activities to the problems in their respective agricultural regions, such as cotton and tobacco at the Pee Dee Station; sweet potatoes, watermelons, cantaloupes, cucumbers, and the mechanization of cotton production at the Edisto Station; vegetable breeding and production at the Truck Station; pastures and beef cattle production at the Coast Station; and peaches, grapes, cotton, and irrigation at the Sandhill Station.

Minor Injuries Cut Potato Profits: Research at this Station indicates that about 30 percent of the early Irish potato crop is lost through spoilage in the marketing process and that most of this spoilage may be traced to minor physical injuries occurring in harvesting. As one example, it has been found that minor injuries are much more numerous when certain types of pick-up baskets are used. A simple canvas shield has served to prevent large-scale injuries of this kind, and one grower has figured out that this shield on his diggers will save him $3500 in a single season.

Mechanical Cotton Harvesting: Mechanical cotton harvesting studies were initiated at Clemson and at the Edisto and Sandhill Stations in 1948 as one phase of a regional cotton mechanization study. Particular attention has been given to the development and testing of more adaptable harvesters. These experiments show that the present production-model picker is economically feasible on the larger type farms, but there is a definite need for a smaller picker more adaptable to smaller farms.
Small experimental spindle-type picker mounted on a Farmall "C" tractor.

**Water Management:** Recent irrigation tests include pastures, field crops, and peaches, to determine (1) ways of increasing the efficiency of supplemental irrigation, and (2) the effects of supplemental moisture on yields, diseases, insects, lodging, etc. Indications are that less frequent applications will be advantageous on some crops.

The drainage experiments are, first, to determine the effectiveness of various chemical sprays in controlling aquatic weeds, and to devise light equipment for these sprays.
Spraying of experimental chemicals for control of aquatic weeds in drainage channel.

Calcium Deficiency in Farm Family Diets: Studies of farm and city families show that calcium is one of the nutrients most often below recommended levels in their diets. It was found that 61 percent of the families having home-produced milk had the full allowance of 1.0 gram per man per day recommended by the National Research Council, compared with only 8 percent of those with no home-produced milk. Another analysis showed that not less than one pint of milk per person per day gave most families the recommended quantity of calcium in their diets.

Better Seed from Certification: A greater number of farmers in South Carolina are increasing their farm incomes by growing and using certified seed. Seedsmen are well pleased because they are able to purchase superior seed. The Foundation Seed Association program will enable farmers to secure promptly the latest strains
and varieties. The Seed Short Course held at Clemson during Farmers’ Week, sponsored by the Crop Improvement Association, has been helpful to farmers, seedsmen, and agricultural workers.

**Nitrogen Improves Corn:** Recent investigation results suggest that corn yields in the state could be increased by thicker stands and heavier nitrogen fertilization. A yield of 120.6 bushels per acre was obtained by using 135 pounds of nitrogen per acre with 10,000 plants per acre (equivalent to a spacing distance of 15 inches in rows 42 inches apart). Increased nitrogen also markedly increased the protein content of the grain.

Labor-saving machine for use in stringing tobacco leaves,
Superior Cotton Varieties: A promising new long staple upland cotton has been developed at the Pee Dee Station. It is a hybrid between Coker Wilds and Tidewater Acala. The new cotton is 15 to 25 percent more productive than standard long staple uplands, and the spinning performance is as good or better.

Progress is being made also in developing other long staple varieties by crossing extremely strong-fibered noncommercial types on standard short and long staple upland varieties.

New Tobacco Sticking Machine: A new labor-saving machine has been developed by Station workers for sticking tobacco on wire paling. It requires only about one-tenth the time of the stringing operation now commonly used.

Disease-Resistant Romaine Lettuce: A disease-resistant romaine lettuce developed by the Truck Experiment Station and tested on Heads of Parris Island romaine lettuce.
Beaufort county farms, not only produced exceptional yields but also shipped and sold well. It should restore the lost lettuce industry to its former importance.

**New Cucumber Varieties:** With the introduction of our Palmetto cucumber five years ago, a new cucumber industry was started for the fall season. The crop last year was valued at over one-third of a million dollars. The new Santee variety developed here also made a most impressive record as a spring crop last season.

**Better Watermelons:** Two new varieties of watermelons under test at the Edisto Station were No. 48-12 and No. 48-11G-1, both developed by Dr. C. F. Andrus of the U. S. Vegetable Breeding Laboratory at Charleston. No. 48-12 is a Garrison-type melon with deeper base color, excellent quality, and considerably earlier than Garrison. No. 48-11G-1 is a Congo type of excellent quality and a few days earlier than Congo.

New Hampshire is an icebox-type melon of very good quality. It is early and produces abundant fruit weighing 3 to 5 pounds. It may prove of interest to home gardeners.

Congo, the recently introduced anthracnose-resistant melon with a tough rind, was the principal factor in lengthening the 1951 shipping season in the Blackville area.

**Cork Spot in Sweet Potatoes:** Sweet potato growers can arrest the development of the internal cork disease by holding storage house temperatures below 60 degrees Fahrenheit. Studies at the Edisto Station indicate that a marked increase in the number of corky spots occurs if this temperature is exceeded. Two new varieties which developed no corky spotting and which have many desirable qualities are being further tested.

**Control of Peach Leaf Curl:** An epidemic of the peach leaf curl disease in orchards of the upper Piedmont during the spring of 1951 caused defoliation, fruit-drop, twig dieback, and the resulting de-vitalization of infected trees. The Elberta is one of the most highly susceptible varieties. Leaf curl can be controlled by one dormant spray of liquid lime-sulfur or of Bordeaux mixture.
Control of Brown Rot Fungus: In experimental spray tests for control of brown rot of peaches, wettable sulfur continues to be an excellent fungicide for brown rot control. Certain new organic fungicides appear to be promising.

Boll Rots of Cotton: Recently available data indicate that some of the cotton fiber from the Coastal Plains in 1950 was somewhat more alkaline than usual and that the strength of the fiber was below that indicated by its grade. Extensive surveys in 1951 will determine the extent to which boll rots, tight-lock, and weather-damaged seed cotton are associated with low fiber quality.

Chemical Weed Control: Applications of pre-emergence herbicides to cotton fields followed by post-emergence applications of special oil were quite successful and promise to eliminate or greatly reduce hand labor for weed control in cotton production. For control of woody plants, esters of 2,4-D and 2,4,5-T in kerosene or diesel oil applied to the basal 18 to 24 inches of stem or trunk during the dormant season were effective.

Forestry and Wild Life Project: The forest inventory, volume computation, and cutting budget are in progress on the 28,000-acre Land Use Area at Clemson. A wild life project has been set up on 10,000 acres. This Land Use Area will serve to demonstrate how to build up our forestry-game resources in the Piedmont.

Effective Blue Mold Treatment: During the past season 90 percent of the tobacco farmers in South Carolina treated plantbeds for blue mold. Three fungicides now available are Fermate, Parzate, and Dithane Z-78. New fungicides against blue mold are tested each year as they become available.

Black Shank of Tobacco Spreading: Black shank, serious soil fungus disease of tobacco, is becoming widespread in the tobacco area. Once a farm becomes infected, the only control is a combination of crop rotation and resistant varieties. The main emphasis is on improving the resistant varieties. Flue-cured varieties are being crossed with two wild species in the effort to improve resistance to Black shank.
Seasonal Control of Cotton Insects: At the Pee Dee Station, early seasonal control of cotton insects has proved to be of great value. Gains of seed cotton per acre were much higher per poison application from early seasonal control than from the previous method of waiting until 15 to 25 percent of the squares are destroyed before beginning insecticide applications.

New Chemicals for Red Spider on Cotton: Recent research at the Pee Dee Station has revealed several new insecticides, including parathion, tetraethyl pyrophosphate, aramite, and EPN, that are highly effective against red spider mites on cotton and will usually control heavy infestations with one application, either as dust or spray.

Parathion Aids Peach Growers: Work with the new organic insecticides, especially parathion, enabled peach growers to produce peaches of exceptionally high quality. This crop was essentially free of insect injury and consequently less brown rot disease, so that the peaches reached the northern markets in good condition.

Controlling the Peach Tree Borer: A new treatment for peach tree borer control is the application of trunk sprays of organic insecticides at regular intervals during the season. These can be applied with regular orchard spray machines. This is a great advantage over the old expensive method which required hand labor entirely.

Toxaphene Injures Tobacco Quality: In a cooperative test with a commercial cigarette manufacturer, tobacco that had been treated with toxaphene during the 1950 growing season proved objectionable to smokers. So it seems evident that toxaphene should not be used on tobacco.

Organic Insecticides and Soil Fertility: The use since 1944 of organic insecticides on crops has brought to the front the question of their toxicity to the soil. Tests are under way at Clemson for the study of such soil toxicity.
**Beef from Grass:** Purebred Hereford heifers are being grown out by the Experiment Station without use of concentrated feeds. At eight months of age calves were weaned and grazed on ladino clover and fescue grass until March 1, and then grazed on crimson clover and Italian rye grass which had been seeded on a Bermuda grass sod. When the clover and rye grass were gone, the Bermuda grass furnished ample grazing at the rate of $1\frac{1}{2}$ animal units per acre.

![Cattle grazing](image)

The foundation of sound beef cattle production on South Carolina farms is permanent pastures and annual grazing supplemented by the production of hay, silage, and grain.

**Kidney Worm Control:** Preliminary field research has indicated that the delta isomer of benzene hexachloride (BHC), added to the soil of an enclosed pen containing a sow and new-born pigs, will destroy 99 to 100 percent of 18- to 20-hour-old swine kidney larvae. This will aid in controlling the swine kidney worm.

**Better Chickens for Broiler Production:** The Station is developing more efficient broiler strains of White Plymouth Rock and New Hampshire chickens. Particular emphasis is given to breast type and fleshing, rapid growth and feathering in growing stock, and high egg production, fertility and hatchability in mature birds.
REPORT OF THE EXTENSION SERVICE

D. W. Watkins, Director

The primary duty of the Extension Service is to carry to farmers and farm home-makers the findings of research and successful farm and home experience, and assist them through practical demonstrations and interpretation in applying this information to improve their farms, farm homes, and communities, to the end that they may build a safe, sound, and progressive agriculture and rural life.

The 1950 Agricultural Program for South Carolina


Extension Activities and Results

To carry out the 1950 Program, county extension workers made 115,891 farm and home visits to 67,726 farms and homes. They held 669 meetings to train adult farm and home leaders and 484 meetings to train 4-H club leaders. They gave 23,730 method demonstrations to 463,696 farm people to show improved ways of doing farm and home jobs. They assisted farm people in conducting 10,384 demonstrations to show results of improved farm and home practices, and held 1,474 meetings at result demonstrations. They conducted 559 farm and home tours to study new methods and practices. They enrolled 51,352 farm boys and girls in 1,747 community 4-H clubs and organized and worked with 1,024 adult home
demonstration clubs. They prepared and published 14,458 newspaper articles giving timely agricultural and home economics information, distributed 319,901 farm and home bulletins and other material, and made 3,110 radio broadcasts. They held or took part in 34,521 educational and demonstration meetings which were attended by 944,455 farm people; and 154,281 farm people came to county extension offices, and 139,958 called by telephone for information and assistance.

**Agricultural Economics and Farm Management** extension work included presentations of farm and home outlook information at 596 community meetings, farm accounts and farm planning demonstrations, improved landlord-tenant agreements, and development of father-son partnerships.

**Home Management and House Furnishings** work was aimed at assisting farm families in planning new homes and improving their homes for comfort, efficiency, and appearance.

Irrigation of tobacco... extension workers assisted 159 farmers in setting up and operating irrigation systems in 1950.
Agricultural Engineering extension work consisted of assistance to farmers in selection, care, and operation of the rapidly increasing amounts of machinery and equipment on South Carolina farms.

Field Crops, Pastures, Soils and Fertilizers work included demonstrations in flue-cured and aromatic tobacco, corn production, small grains, soybeans, and permanent pastures. County agents report a new high record of 748,021 acres of improved pastures and annual grazing in 1950. Two new high crop production records were made in 1950: In cotton production, 99.4 percent of the lint produced was of one inch or longer staple; and in corn production the average yield was 23 bushels per acre as compared with an average of 15.2 bushels per acre for the 1940-44 five-year period.
Five-acre cotton contest demonstrations were conducted on 702 farms in 1950 with an average production of 564 pounds of lint cotton per acre.

Soil Conservation extension work, conducted in cooperation with the soil conservation districts and the Soil Conservation Service, included educational meetings, tours, and demonstrations showing methods and results of soil conservation practices.

Fruits and Vegetables extension work emphasized efficient production and high quality products, both for market and for home consumption.

Farm Forestry extension work included assistance to farmers, with demonstrations in marketing farm timber to the value of $1,401,201; and assistance to state forestry workers in distributing and planting 29,561,995 tree seedlings, and in other forestry practices.
Livestock extension work, based upon grassland farming and increased feed production, included introduction of purebred beef bulls, hog-feeding demonstrations, control of swine parasites, 4-H pig and calf clubs, meat cutting and canning, and marketing of hogs. Two outstanding new high records in livestock work were the 3,009 purebred beef bulls reported in 1950, and hogs marketed to the value of $2,478,450.

Dairying extension work included assistance in obtaining and selecting purebred bulls and purebred or high grade cows and heifers, operation of 15 county artificial breeding associations, op-

Dairy cows on South Carolina farms produced a new high record of 3,990 pounds of milk per cow, and a new high record total production of 630,000,000 pounds of milk in 1950.
eration of 23 cream stations and 100 milk routes, and 4-H dairy calf clubs. Dairy cows on South Carolina farms made two new high records in 1950: 3,990 pounds of milk per cow, and 630,000,000 pounds of milk total production.

**Poultry** extension work was aimed at assisting farmers in the efficient production of high quality poultry and eggs for home use and for market. Two new high records for the state were made: 8,801,000 commercial broilers produced, and 757,000 turkeys.

South Carolina farmers produced a new high record of 757,000 turkeys in 1950.

**Insects, Diseases, and Pests.** An intensive educational and demonstrational program on control of cotton insects and diseases was conducted in cooperation with agricultural agencies and business leaders. In this program, over 35,000,000 pounds of cotton insecticides were used. The results show that unpoisoned cotton produced an average of 93 pounds of lint cotton per acre, while cotton poisoned 10 or more times produced an average of 446 pounds per acre. Farmers were assisted also in control of other insects, diseases, and parasites of crops and livestock, rats and other farm pests.
Food and Nutrition extension work included demonstrations in production, conservation, preparation, enrichment, and use of foods in balanced diets, production of home gardens, methods of freezing foods, etc.

The Rural Health and Sanitation program was conducted in cooperation with county and state health departments by training leaders in methods of improving the health of farm families, physical examinations for 4-H club members to point out defects, etc.

Home demonstration agents held 33 sewing machine clinics at which farm families were assisted in cleaning, oiling, and adjusting 2,641 sewing machines.

Clothing and Textiles extension work included assisting farm families with selection of clothes and textiles, care and remodeling of clothing, sewing machine clinics, etc.
Home Beautification work included demonstrations in beautification of home grounds, rural churches, and rural schools, to the improved appearance of the countryside.

In Marketing, farmers were assisted in selling products of diversification valued at $15,801,178 and in purchasing farm equipment and supplies valued at $3,563,803; and assisting 49 cooperative marketing associations with problems of organization and operation. The South Carolina Marketing Commission was assisted in planning centralized marketing facilities for farm products; and 11 poultry dressing plants were assisted with establishment problems.

Negro agricultural agents assist Negro farmers in following improved agricultural practices.

Four-H Club Work consisted of training farm boys and girls through practical demonstrations in good farming and home making, citizenship, and leadership. Making a new high record, 51,352 farm boys and girls were enrolled in 1,747 4-H clubs.
The Publications and Radio extension program was aimed at keeping South Carolina people informed through newspaper releases, radio broadcasts, farm and home bulletins, circular letters, and other publicity material on up-to-date agricultural and home economics information. A statewide radio program consisted of daily “Voice of Clemson” broadcasts, and a weekly transcription service to 26 South Carolina radio stations.

The Visual Instruction program included showing educational films and use of other visual aids, including photographs of farm and home demonstrations in newspaper articles, bulletins, and exhibits.

A review of the progress of the main agricultural activities in South Carolina shows that marked changes and adjustments are taking place. Farmers are continuing to make progress in their efforts to conserve and improve the soils. They are balancing their traditional cotton, tobacco, and truck crops system of farming with increased numbers of livestock per farm. They are increasing yields per acre and improving the quality of their crops. The quality of livestock and the production of meat, milk, and eggs per animal is rising steadily. Efficiency in production is being advanced through the use of science, mechanization, and labor-saving practices. Farm homes and other farm buildings are being improved for comfort, efficiency, and general appearance. The farm people of South Carolina are gaining ground in their battle to build a safe, sound, and progressive agriculture and rural life.