SIXTIETH ANNUAL REPORT

of the

BOARD OF TRUSTEES

of

The Clemson Agricultural College

to the

General Assembly of South Carolina

1949

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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 for the fiscal year July 1, 1948 to June 30, 1949.

Members of the Board have reviewed the affairs of the several agencies of the college on three occasions during the past year and have found them entirely satisfactory.

Respectfully submitted,
Christie Benet,
President, Board of Trustees

December 1, 1949
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WHERE THE CLEMSON STUDENTS COME FROM

FIRST SEMESTER 1949 - 1950

TOTAL ENROLLMENT 3360

SOUTH CAROLINA 2650
NORTH CAR. & GEORGIA 381
OTHER SOU. STATES 137
OTHER STATES 192

SOUTH CAROLINA 78.9%
OTHER SOU. STATES 15.4%
OTHER SECTIONS 5.7%
I have the honor to present to you the sixtieth report of the President of Clemson College. In addition to the reports of the public service activities, I am including short summaries of the work of the various schools of the college.

In 1948-1949 there were 3277 students enrolled in the first semester and a total enrollment of 3645 for the year. Thus far this session we have enrolled 3360 students. During the post war period it has been necessary to control the enrollment at approximately 3250 and it now appears that the enrollment will remain close to this figure for the next few years in spite of the large demands for enrollment.

The 3360 students who have enrolled this semester are majoring in the various schools as follows: Engineering 1092; Textiles 830; Agriculture 705; Arts and Sciences 299; Education 308; Chemistry 31; Graduate 95. It is estimated that more than 100 graduate students will be enrolled during the year.

Of the present enrollment 78.9 per cent of the students are from South Carolina; 15.4 from other southern states; and 5.7 from all other sections.

In 1946-1947, 75.3 per cent of the students in Clemson were veterans. A year later it had dropped to 65.0 per cent, two years later to 60.4 per cent, and this year to 45.3 per cent. There has been a corresponding decrease in tuition since veterans pay $250 each session as compared to $80 paid by resident non-veterans.

The enrollment of students in the School of Agriculture has continued to increase, reaching a post-war high of 705 students.
majoring in agricultural subjects for the first semester of 1949-50. Almost two-thirds of the agricultural students are majoring in three subjects; namely, Animal Husbandry, Agricultural Engineering, and Agronomy. This has greatly increased the teaching load for these departments and taxed their facilities to the utmost. The situation should be eased considerably in the Agricultural Engineering Department when the proposed new building for that department is erected in the near future.

The School of Agriculture is divided into various departments to train students in the specialized phases of agriculture. We are in an age of specialization and there is a demand for more of this type of training. The success of those engaged in highly specialized agricultural enterprises is often definitely determined by their knowledge of the latest available scientific information.
Agriculture has recently passed through a period during which capacity production was emphasized. The efficient use of the backlog of scientific information, together with the high price of all agricultural commodities, resulted in record production of many of our major food products. The present and prospective future surpluses of agricultural products will necessitate a change in emphasis in our agricultural enterprises.

The possibility of acreage allotments and production quotas will require many readjustments in our agricultural enterprises. The trend in these enterprises will be away from the intensive use of the soil for high acreage value row crop production to more extensive land use patterns, including more relatively low acreage value small grain and sod crops. It will be necessary to give more emphasis to labor income and less to acreage income.

Crop production should be directed toward feed for livestock. In the animal production program emphasis should be given to efficient utilization of the feed crops that can be produced most successfully in this region.

The present high prices of farm products and the rapid expansion of the mechanization of farm production enterprises has resulted in a large number of agricultural graduates returning to the farm rather than seeking employment in professional fields.

The present objectives of the School of Agriculture are to train men for (1) efficient production enterprises, (2) business enterprises related to agriculture, (3) administration of agricultural programs at national, state, county, and community levels, and (4) scientific research work in all fields of agriculture at undergraduate and graduate levels.

There is a very great need for an effective agricultural teaching program at the graduate level. At present this region largely depends upon other regions, including the northern and midwestern states, for graduate training in agriculture. A graduate agricultural teaching program based upon the prevailing climatic, soil, and economic conditions of the region could be of very great value in increasing the efficiency of our agricultural enterprises.
In spite of the need for additional space, the year 1948-49 worked out more satisfactorily than expected for the School of Chemistry. Due to the addition of an extra year in the high schools of the state, the freshman class was small so both room and personnel were available for crowded upper classes.

The situation this fall is quite different. The number of students enrolled in Freshman Chemistry numbers around 1060 which is 40 more than the number of laboratory desks available. The only bright spot in the picture is that the plans for the new Chemistry building are now being completed by the architects and construction work should start by the first of the year.

By eliminating all activities other than Chemistry instruction it was possible to design a building which could be constructed for the amount of money appropriated. This, however, left no additional funds for equipping the new building. According to present plans, all of the equipment and desks in the present building that are in shape to be moved, will be transferred to the new building. However, many of the desks have been in the old building since it was constructed in 1890 and they are not worth transferring. These must be replaced and many of the old desks must be renovated before they can be satisfactorily used in the new building. This will create considerable expense for which no funds have been provided, and a new building is of no value for instruction if it is not equipped.

The Naval Research Contract has been renewed for an additional year and in this way the college and state are making their small contribution to the National Research effort, so vital for the future welfare of the nation.

There are now eight students teaching half time and working for their Master’s degree half time. This arrangement has been invaluable in providing adequate instruction for the large freshman classes.

No difficulty was encountered in placing the graduates of the School of Chemistry. Several of them have gone to other institutions for graduate study, some into teaching, and others into industry.
Because each year the School of Arts and Sciences is serving almost all students enrolled, it has the majority of teacher-student contact hours in the college. The principal function of the School of Arts and Sciences is to teach all Clemson students mathematics, physics, English, foreign languages, and the social sciences. Training in these fields is needed by students as the basic foundation for specializing in various professional fields and as broadening general education which is essential for the educated man. Because other schools of the college are primarily concerned with technical training, it is the School of Arts and Sciences that gives to students in the college their training in the subjects that develop what we call Americanism and the broadening education that enables a man to become an executive rather than a technician.

Several new courses have been added recently. Two of particular interest are a course on the history of our country’s major industries and a course in atomic and nuclear physics.

Besides teaching nearly all students in the college, the School of Arts and Sciences sponsors three major courses, utilizing facilities already necessarily established at the college.

The major in Pre-Medicine at Clemson is particularly fortunate in having available work in the natural sciences necessarily provided for other fields here but not generally found at other institutions in the state.

The major in Arts and Sciences is provided for the accommodation of those students who wish to attend Clemson and who want a good general education rather than specialized training in a technical field.

The major in Industrial Physics, inaugurated shortly before World War II, is training students for service in the industrial world in this field in which the national supply is very limited and especially needed because of important developments in atomic and nuclear physics.

In the Physics Department addition of some modern equipment and acquisition of a considerable volume of war surplus equipment has made possible participation of individuals in research activities as well as improved teaching facilities. Several members of the Physics staff are engaged in research problems in
such time as they can find from their teaching duties. Most of this research is connected directly with research problems in agriculture or textiles; e.g., the physicists have used the electron microscope in research on soils in cooperation with studies in progress in the Agricultural Experimental Station.

The employment of sufficient and adequately qualified staff personnel in the School of Arts and Sciences has been exceedingly difficult particularly because of salary competition with other institutions, the government, and industry in the face of an inadequate supply. Fortunately, in spite of the loss of a number of men to higher salaried positions, the School of Arts and Sciences has a predominantly young but promising staff; however, there remains the perennial problem cycle of employing promising inexperienced young men, training and losing them, and having to replace them with other inexperienced men.

It is significant that members of the staff of the School of Arts and Sciences are making special effort to improve themselves for their work. During the current session twelve members of the staff of the School of Arts and Sciences are on extended leave without pay studying at ten different universities across the nation working toward the Ph.D. degree in their respective fields. In addition to those on extended leave a considerable number are doing graduate study in the summers. If we can hold these men after they complete their degrees, our staff will be very materially strengthened.

One serious handicap of the School of Arts and Sciences in performing its proper function is the woeful lack of building space. We are utilizing our classrooms and laboratories to the utmost, using them much more than what was set in the rigid scale of the army contracts as one-hundred per cent use during the war. Not a single member of the staff of the School of Arts and Sciences, dean, department head, or instructor, has a private office. Most of our men have no place where they can have conferences with students, and there is practically no provision for instructors even to have desks at which to work while other instructors are using the available classrooms. This condition definitely is not conducive to good work. In the face of these adverse conditions the staff con-
continues to exert its best efforts to give a good quality education to the big numbers of young men who crowd the institution.

Clemson's School of Education is alert to many problems in public school education. Efficiency and economy in public education have been emphasized in: District Organization, Transportation of Pupils, Daily Attendance, and various other aspects of the program. To prepare high school teachers at Clemson to help bridge the gap is an evident need which the Education Curriculum hopes to work toward. For years our chief emphasis was on the preparation of vocational teachers of agriculture and industry. To supply more than two hundred schools with teachers meeting Smith-Hughes requirements has not been an easy job for many of these teachers soon find salary promotions in other fields. We hope to continue and strengthen both the agricultural and industrial vocational teacher training.

Graduate training in cooperation with the Agronomists, Agricultural Economists, and the Agricultural Engineers and other scientists in the Experiment Station is now in progress. In-service training out in the field continues to have attention. Industrial teacher trainers consider practical industrial arts as well as trade and industrial training through on-the-job visits, conferences, and summer workshops. Up-to-date film service through the industrial teacher trainer's office last year provided 1300 bookings and an estimated 40,000 vocational viewings. Industrial workers in South Carolina desire to see the latest developments. These 16 mm films are provided at no cost to the pupil whose instructors may coordinate the showings with industrial teaching exercises.

Fifty-two students preparing to teach are meeting 335 high school pupils and 125 veterans in directed teaching through the cooperation of six nearby schools. This calls for heavy demands on Clemson's student transportation to the classes and individual farms. This internship involves working with public schools, administrators, and teachers almost every period of the day and some evening classes are held. Adult groups, including G. I.'s as well as regular high school pupils, are involved in this program. The public school program aims to be as broad as life; teacher preparation seeks to approach the present and future objectives. Crowded classroom conditions at the college hamper the preparation for teaching.
During the 1949 summer and to the present this session, about eighty individuals have enrolled in work for graduate students only. This is an approximate increase of 100 per cent over this time last year.

The State's teacher certification is stimulating some to study, but many public school teachers have sought graduate work here for several years. We hope to make the program better and better. A new course in Health Education has enrolled forty-seven students. Similar training is expected of all persons preparing to teach. All public school teachers are expected to have training in Art Appreciation, given here by the Department of Architecture, and Music Appreciation, given here under the School of Education.

Our immediate needs are more classrooms and a shop room and equipment. In the absence of a college high school or training school, Clemson's teacher education facilities need expansion.

During the past year the School of Engineering has graduated the largest number in the history of the school. In spite of the large number and the slowing up of industry, practically all of our graduates were placed in good positions.

From a study made of the graduates during the past year or two, I was greatly pleased to find that more than 40 per cent remained in South Carolina and over 70 per cent in the South. Many of those who go North for further training return later. Many years ago there was practically no opportunity for our graduates in South Carolina, and not much in the South except for a few civil engineers, particularly in highway work.

We are still having trouble finding many properly qualified to fill a few positions at the salaries we have available. The good men are still in great demand by industry and other institutions.

We have continued to install some of the surplus equipment we received from the government. The machines in the shop are all placed and all except a few are in operation. A few need the necessary tooling which we will have to get gradually because of the expense. Practically all of the equipment in the Internal Combustion laboratory is now in operation. This laboratory is one of the best in the South. Work has continued on the installation of surplus equipment in the Hydraulic laboratory, space for which
Students making tests on the new power plant installed in the steam laboratory in the Mechanical Engineering Department. The boiler and superheater seen in the background generates steam at 450 pounds pressure and 750 degrees F. This steam is used in the turbo-generator set shown in the foreground, which was specially designed for engineering laboratories.

was made available by the extension of Annex "C" by the government. Considerable work has also been done in the Electrical laboratory, but because of lack of space, we cannot complete this installation.

The Ceramic Engineering Department has continued research on South Carolina minerals. We have completed the work on sillimanite and are now continuing our work on clays with particular reference to kaolin which appears in large quantities in the State.

Further research is being made on rammed earth as a building material with a view of getting out another bulletin on this subject. We now have 1200 or 1500 applications for the old bulletin which is out of print.
Considerable interest is being shown in our graduate work. We now have students taking graduate work in Civil, Electrical and Mechanical Engineering. One man graduated in Mechanical Engineering in June, 1949.

Our greatest need at the present time is more space. We do not have enough class rooms and the space in our Electrical and Chemical Engineering laboratories is so limited we are unable to install some of the equipment we have on hand, and the laboratory work with the students is suffering because of this lack of space. Not only do we need this additional space to take care of our undergraduate work, but as our graduate work grows we will need additional space for that also, as well as for research which we hope to do more of in the future. We need additional room for Civil Engineering, Electrical Engineering, Welding, Drafting, Architecture, Chemical Engineering and Ceramics. It has been very difficult to schedule all of our work because of this lack of space even with the five temporary buildings, and with the space we have been borrowing from the Textile Building. With the trouble we are having with our present number of students, I do not see how it will be possible for us to take any more without additional buildings. We must have this space in order to carry on our work satisfactorily, otherwise our reputation which we have developed through the years will necessarily suffer so that we will not be able to place our graduates as we have been doing so well in the past.

The School of Textiles continues to make progress. The enrollment for the present semester is 830 students. The Textile Manufacturing curriculum is being followed by the largest number of students of any course in the college. Approximately 200 degrees will be granted from the Textile School in the calendar year 1950. Jobs were available for all the 1949 class who wanted to go into the industry.

The school has been able to do some selecting in the latest additions to the staff, a thing that was almost impossible in other years since the war. The classes have been held down to reasonable sizes—it is essential that most laboratory classes be taught in small groups.
This year, for the first time, there is a staff member on the J. E. Sirrine Foundation. He is taking classes for other faculty members, when they visit mills, and working on a research project the rest of the time. This project appears to have very real possibilities in improving spinning. The industry is very much interested.

Very little new equipment has been added to the school in the last year, except through donations. The Burlington Mills donated $10,000.00 for dyeing and finishing equipment. This cannot be put into operation until the Chemistry School vacates the space it is now using.

A major course in knitting has been approved and has started to operate. At present, about ten students have selected this as their major course. Several knitting machine companies have placed machines in the school on consignment. The knitting field is a great field for small industry.
The Textile Chemistry department is now offering work leading to the Master of Science degree and has four students enrolled.

At the present time, four members of the staff are on leave taking graduate work and three other members of the staff have started work on an advanced degree.

The success of the School of Textiles depends on its teaching staff and equipment. Every effort must be made to keep abreast of the times.

During the past year the Public Service Activities progressed in a satisfactory manner.

By use and support of mechanization South Carolina agriculture is becoming diversified. Diversification on a sound basis depends upon a good market for the new crops being grown and that seems to be satisfactory for the present.

The Experiment Station Report shows that choice grade beef cattle were pasture fed almost entirely throughout the year. This was not possible until South Carolina farmers became good-pasture conscious. The state could not become good-pasture conscious without grasses and crops adaptable to the soils and climate of the state. We now know that no state offers better opportunities for dairy and beef cattle production. Fortunately the federal and state agricultural agencies and the farmers are of one mind in the development of animal industry in South Carolina.

We need not fear that mechanization will seriously injure the small farmer. The new Turkish tobacco crop is an example of the type effort the college is undertaking. With this tobacco on a few acres the farmer can make a good living. More and more we shall try to show farmers how they can profit by growing strawberries, lima beans, and other special crops which will be in greater demand by the individuals who have home deep-freeze units. The opportunities will be placed before the farmer and he will be properly informed of qualities and how to package his crops. Our farmers have been marketing many of their products but they have not yet realized the fullest advantages of the home markets. Each year figs, scuppernongs, walnuts, and other products which people want but don’t get go to waste on the farms. These products could be sold and would add to the income of many farm families.
The number of mechanical cotton pickers in use on South Carolina farms jumped from 7 in 1947 to 90 in 1948.

Any sound agricultural economy in South Carolina is contingent upon protecting the growing crops and saving the products after they are harvested from the ravages of insects and diseases which seem to become more serious each year. We have recognized the responsibility of the college in fighting these pests. We know that the chemicals recommended for the control of certain pests must be potent and effective and that ineffective materials must be eliminated; that we must guard against the use of chemicals which are harmful to man and plant; that we must learn and advise the farmer what to apply, when to apply, amounts to apply and under what conditions in order to secure the best results. We realize that these factors demand more knowledge of resistant varieties. All of the agricultural departments of the college can be of service to this program because in some way they are brought
into contact with the problems. I believe the committee, composed of members from all departments, now at work on the control of insects and diseases is making progress. The control of insects, diseases, and obnoxious weeds is not an easy problem but the committee of experts will meet the challenge with which the members are charged. Thus far the farmers and the manufacturers of pesticides have cooperated and under such conditions we invite suggestions and assistance as we do not believe the job can be done well without further control legislation at this time.

Each year through large committees of farmers on both county and state level agricultural programs are developed for the Extension Service. This means that the farmers have much to say about their needs and in conjunction with the experts programs of action are perfected. The members of the General Assembly are also helpful and for that reason we invite discussion of agricultural problems in the hope that the solution of the state’s many problems may be reached without controlled legislation.

Many farmers, war veterans, club boys, and others have inspected the work of the experiment station and its branches during the past year to gain first-hand knowledge of the research being carried on. The increase in the number of visitors indicates greater interest than ever before in the work of the different stations. Between January 1 and September 1, 1949, 1310 individuals in 32 groups visited the Pee Dee station at Florence. More than 1000 visitors in 30 groups were handled at the Edisto station and 550 farmers and club boys visited the Coast station at Summerville between February 1 and September 1, 1949. The Truck and Sandhill stations and Clemson College were hosts to comparable numbers of visitors interested in all phases of the agricultural research program.

These visits reveal the fact that many farmers who have not heretofore availed themselves of the information and services of the experiment station are now doing so.

Between five and six thousand farmers came to the college during Farmer’s Week this year. In 1948 greatest interest was shown in mechanical equipment and as a result this year there was a great display of new equipment and the farmers took note of it. This year pasture demonstrations received the most atten-
tion. The season had been favorable for pasture plants and the resulting demonstrations proved of great interest to those in attendance.

Considerable interest was exhibited in the work being done with clays. Building plans for farm units likewise attracted much attention. The conference of rural ministers was again successful.

According to the opinion of many farmers this was Clemson's greatest Farmer's Week. The variety of subjects and demonstrations covered seemed to meet the needs of the farmers. A committee is already making plans for the meeting to be held next summer.

\[\text{President}\]
REPORT OF THE TREASURER

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

Dear Dr. Poole:

I have the honor of transmitting herewith the annual report of the financial affairs of the Clemson Agricultural College of South Carolina for the fiscal year July 1, 1948 to June 30, 1949 in accordance with an act of the General Assembly.

Respectfully submitted,

A. J. BROWN, Secretary-Treasurer

THE CLEMSON AGRICULTURAL COLLEGE OF SOUTH CAROLINA
COLLEGIATE ACTIVITIES
Fiscal Year — July 1, 1948 to June 30, 1949

INCOME

Legislative Appropriation:
(Revenue from Operation of Clemson College Transmitted to State of South Carolina)

Tuition, Matriculation, Etc.

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<tr>
<th>Description</th>
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<th>Total</th>
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<td>Summer School 1948</td>
<td>$51,313.80</td>
<td>$51,313.80</td>
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<tr>
<td>Session 1948-1949</td>
<td>$604,834.14</td>
<td>$656,147.94</td>
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Privilege Fertilizer Tag Tax paid to State of South Carolina

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<tr>
<td>South Carolina</td>
<td>$251,287.33</td>
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<td>From Other State Funds</td>
<td>$297,626.73</td>
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Total Legislative Appropriation

<table>
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<tr>
<td>Federal Funds</td>
<td>$45,841.20</td>
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<tr>
<td>Endowment Funds</td>
<td>$9,266.36</td>
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<tr>
<td>Miscellaneous—Rents, Sales &amp; Service</td>
<td>$105,820.50</td>
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<table>
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<tr>
<th>Total</th>
<th>$1,205,062.00</th>
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### Student Fees:

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<th>Laboratory Fees</th>
<th>$154,507.66</th>
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<td>Class Maintenance Fees</td>
<td>54,300.64</td>
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<tr>
<td>Summer School 1948</td>
<td>19,495.29</td>
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<tr>
<td>Summer School 1949</td>
<td>29,724.53</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$258,028.12</strong></td>
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Sales and Service Collegiate Department | 586,173.69
Auxiliary Enterprises | 1,056,689.51
Transfer from Veterans Housing Account | 17,986.07
6/30/47 Balances Brought Forward | 193,059.42

**Total Income Collegiate Activities** | **$3,477,926.87**

### EXPENDITURES

**July 1, 1948 — June 30, 1949**

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<th>Item</th>
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<td>A-1 Salaries</td>
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<td>A-2 Wages</td>
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<tr>
<td>B-2 Travel</td>
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<tr>
<td>B-3 Telephone &amp; Telegraph</td>
<td>6,891.57</td>
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<tr>
<td>B-4 Repairs</td>
<td>208,428.79</td>
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<tr>
<td>B-6 Heat, Light, Water, Coal &amp; Power</td>
<td>159,810.33</td>
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<tr>
<td>B Contractual Services</td>
<td>12,652.48</td>
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<td>C Supplies</td>
<td>773,605.50</td>
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<tr>
<td>D Other Charges</td>
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<td>G-7 Equipment</td>
<td>79,198.37</td>
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<tr>
<td>H-3 Improvements</td>
<td>10,142.50</td>
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<tr>
<td>H-2 Buildings</td>
<td>36,970.06</td>
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*Total Expenditures* | **$3,309,893.67**

*Includes $53,267.09 for Fertilizer Inspection and Analysis and $952,842.91 for Student Subsistence, Room, Laundry, etc.*

### STUDENT ACTIVITY FUNDS

<table>
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<th>Receipts</th>
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<td>Athletic Association</td>
<td>$327,120.97</td>
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<td>Taps</td>
<td>25,725.98</td>
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<td>Tiger</td>
<td>17,640.68</td>
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<td>Y.M.C.A.</td>
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<td>Concert Series</td>
<td>19,974.04</td>
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<td>Clemson Alumni News</td>
<td>3,171.45</td>
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<tr>
<td>Student Parking Fines</td>
<td>13.00</td>
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</table>

*Total* | **$468,993.40**
Expenditures:

A-1 Salaries ___________________________ 71,585.88
A-2 Professional Services & Wages _______ 36,255.57
B-2 Travel _______________________________ 54,376.77
B-3 Telephone & Telegraph ________________ 1,841.14
B-4 Repairs _______________________________ 9,767.58
B Other Services ___________________________ 58,165.03
C Supplies ________________________________ 46,372.50
D Fixed Charges ___________________________ 118,107.68
G Equipment _______________________________ 8,222.95
H Improvements ____________________________ 27,969.99
Investments _______________________________ 29,001.78  $461,666.87

SPECIAL STATE APPROPRIATIONS

Appropriations:
Clemson College—For the construction or
enlargement of hospital and the purchase
of equipment therefor ___________________ $300,000.00
Clemson College—For the construction of
buildings or the renovation or repair of
existing buildings, and equipment there-
for _____________________________________ $1,000,000.00
Clemson College—For the construction of
an Agricultural Engineering Laboratory
and the equipment therefor ________________ $250,000.00 $1,550,000.00

Expenditures:
H-2 Buildings ____________________________ $365,729.51 $365,729.51

STUDENT BANK ACCOUNT

Balance on Hand July 1, 1948 _______________ $112,299.06
Deposits Current Year ________________________ 554,839.11 $667,138.17
Checks Paid Current Year ________________ 558,038.62
Balance June 30, 1949 ________________________ 109,099.55 $667,138.17
SMITH-LEVER AGRICULTURAL EXTENSION WORK

Receipts:
- Brought Forward: $4,912.50
- Appropriations:
  - Federal: $835,204.51
  - State: $583,800.00
- Total: $1,423,917.01

Expenditures:
- A-1 Salaries: $1,121,650.07
- A-2 Wages: $40,235.75
- B-2 Travel: $177,008.19
- B-3 Telephone & Telegraph: $13,204.72
- B-4 Repairs: $6,060.27
- B Other Services: $23,837.64
- C Supplies: $40,294.62
- D Fixed Charges: $1,984.80
- G Equipment: $16,780.76
- Total: $1,411,056.82
- Carried Forward: $12,860.19
- Total: $1,423,917.01

MISCELLANEOUS STATE APPROPRIATIONS—EXTENSION SERVICE

Receipts:
- State Soil Conservation Committee: $4,071.77
- Camp Long Appropriation: $2,500.00
- Camp Cooper Appropriation: $2,500.00
- Total: $9,071.77

Expenditures:
- A-2 Wages: $2,260.45
- B-2 Travel: $3,439.96
- B-3 Telephone & Telegraph: $94.56
- B-4 Repairs: $816.23
- C-6 Heat, Light, Water & Power: $222.60
- B Other Services: $33.80
- C Supplies: $423.19
- D Fixed Charges: $276.78
- G Equipment: $54.20
- H-2 Buildings: $1,450.00
- Total: $9,071.77
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: $21,200.00
- Research & Marketing (Non-Regional) Fund: $57,756.29

Total Receipts: $238,180.48

Expenditures:
- A-1 Salaries: $176,449.70
- B-2 Travel: 8,375.50
- B-3 Telephone & Telegraph: 938.75
- B-4 Repairs: 1,505.59
- B-6 Heat, Light, Water & Power: 1,035.57
- B Other Services: 9,433.12
- C Supplies: 16,163.72
- D Fixed Charges: 500.70
- G Equipment: 13,951.31
- H-3 Improvements: 4,000.00

Total Expenditures: $222,353.96

SOUTH CAROLINA EXPERIMENT STATION

State Funds

Receipts:
- Agricultural Research: $149,000.00
- Crop Pests & Diseases: 20,000.00
- Coast Station: 10,000.00
- Edisto Station: 75,000.00
- Pee Dee Station: 50,000.00
- Sandhill Station: 10,000.00
- Truck Station: 34,800.00

Total Receipts: $348,800.00

Expenditures:
- A-1 Salaries: $176,191.72
- A-2 Wages: 73,370.23
- B-2 Travel: 10,291.18
- B-3 Telephone & Telegraph: 1,554.48
- B-4 Repairs: 11,085.61
- B-6 Heat, Light, Water & Power: 3,448.07
- B Other Services: 4,294.00
- C Supplies: 41,407.16
- D Fixed Charges: 6,767.10
- G Equipment: 18,874.45
- H-3 Improvements: 1,516.00

Total Expenditures: $348,800.00
### SOUTH CAROLINA EXPERIMENT STATION

#### Farm Products Fund

**Receipts:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Balance Brought Forward</td>
<td>$32,528.95</td>
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<tr>
<td>Farm Products</td>
<td>$403,384.98</td>
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<tr>
<td>State Marketing—Reimbursement</td>
<td>$3,021.78</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$438,935.71</strong></td>
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**Expenditures:**

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>A-1 Salaries</td>
<td>$7,831.93</td>
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<tr>
<td>A-2 Wages</td>
<td>$112,799.22</td>
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<td>B-2 Travel</td>
<td>$2,213.80</td>
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<tr>
<td>B-3 Telephone &amp; Telegraph</td>
<td>$1,442.08</td>
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<td>B-4 Repairs</td>
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<td>B-6 Heat, Light, Water &amp; Power</td>
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<td>B Other Services</td>
<td>$5,515.69</td>
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<td>C Supplies</td>
<td>$144,655.36</td>
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<td>D Fixed Charges</td>
<td>$9,235.96</td>
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<td>G Equipment</td>
<td>$47,712.45</td>
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<td>H-3 Improvements</td>
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<td>H-2 Buildings</td>
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<td><strong>Total</strong></td>
<td><strong>$377,725.53</strong></td>
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**Balance Carried Forward**

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<tr>
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</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>$438,935.71</strong></td>
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#### LIVESTOCK SANITARY WORK

**Receipts:**

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<th>Description</th>
<th>Amount</th>
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<tr>
<td>Balance 6/30/47 Brought Forward</td>
<td>$12,886.98</td>
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<tr>
<td>State Appropriation</td>
<td>$113,394.00</td>
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<tr>
<td>Sales &amp; Service</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$174,001.44</strong></td>
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**Expenditures:**

<table>
<thead>
<tr>
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<tr>
<td>A-1 Salaries</td>
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<tr>
<td>A-2 Wages &amp; Professional Services</td>
<td>$10,644.00</td>
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<td>B-2 Travel</td>
<td>$14,910.43</td>
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<td>B-3 Telephone &amp; Telegraph</td>
<td>$665.43</td>
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<tr>
<td>B-4 Repairs</td>
<td>$263.22</td>
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<td>C Supplies</td>
<td>$54,791.33</td>
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<td>D Fixed Charges</td>
<td>$13,136.36</td>
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<td>G Equipment</td>
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<td><strong>Total</strong></td>
<td><strong>$165,192.91</strong></td>
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**Balance 6/30/47 Carried Forward**

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<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>$174,001.44</strong></td>
</tr>
</tbody>
</table>


Gentlemen:

First we, the members of the Board of Visitors of 1949, wish to express our appreciation for the honor that has been paid us in inviting us to visit the campus and make recommendations to you for the welfare of Clemson College.

The Board is impressed with the fact that the college is operating efficiently under the handicap of crowded conditions and lack of sufficient funds. The Board hopes that the State of South Carolina will devise immediately a method of long range financing to give to Clemson (and other state institutions) facilities so much needed to alleviate overcrowded conditions.

Clemson today is caring for 3200 young men in a plant designed to take care of no more than 2000. The Board is disturbed that such conditions exist and feels that no time should be lost in rectifying them. It is neither fair to the students and faculty nor the parents, many of whom have made great sacrifices in order that their sons may attend Clemson. Since there is no immediate prospect of a decline in attendance it is imperative that a remedy be found promptly. Also, money should be provided to compensate more adequately those already employed and to secure other trained professional men.

The Board is aware anew that Clemson is not only an institution of learning, specializing in the agricultural and technical education of students, but the directing agency of a statewide research and extension service which takes on added importance as our state expands and diversifies its industries and agricultural products.
As never before South Carolina is dependent upon research, and the people rightly look to Clemson for research leadership in many vital fields. Special opportunities present themselves in irrigation, drainage and proper land use. Work has been started in these fields which now offer promise of rich returns from continued and expanded research.

South Carolina is benefiting to an untold degree from persistent and intelligent efforts toward a better, more varied and more permanent agriculture, and Clemson’s share in our undeniable progress is patent to all informed observers. The Board bespeaks continued progress, but this is possible only with proper financial support.

The Board believes that all fees collected by the College eventually should be at the disposal of the college to support equitably its program. It sees no particular reason for passing these funds through the office of the State Treasurer, but if this procedure is continued, it is suggested that should receipts exceed estimates for the budget, the total amount collected should be available to the college for its use.

The Board wishes to express its appreciation of the efforts made by the college administration to assist graduates in securing suitable employment and to suggest that this work be continued so that all students will be able to benefit by this advice and assistance.

South Carolina is securing a number of new industries. Some of the nation’s largest corporations have seen fit to select our State as the site for new plants. The Board is of the opinion that there is a fine opportunity for these companies and those already established and operating in our State to use the facilities of Clemson College, which stands ready and willing, as already demonstrated, to cooperate in any joint effort for the good of our State. The Board sees Clemson College as a laboratory to solve many industrial problems.

The Board is gratified that Clemson College is showing a keen interest in forestry. With the increasing importance of this industry in our State, we recommend that the trustees consider expanding the present program. In our diversified agriculture we are
growing more trees than ever and more use is being made of forest products in manufacturing. Therefore, it is important that we keep abreast of the needs of the industry. We feel that it should be determined whether there is a need for a school of forestry.

The Board of Visitors is of the unanimous opinion that it should not conclude this report without paying special tribute to the outstanding leadership of Dr. R. F. Poole, whose services to Clemson College and the people of South Carolina cannot be overestimated. His wise guidance, intellectual integrity and splendid character, together with his genuine and sincere interest in his fellow man, do much to explain the outstanding accomplishments of Clemson College, both within and without the State.

The Board recommends to the Trustees the appointment of S. L. Latimer, Jr., of Columbia, South Carolina, as the hold-over member of the Board of Visitors for 1950.

Respectfully submitted,

Hugo S. Sims, Chairman
R. D. Anderson, Secretary

W. Marshall Bennett
W. B. Camp
A. E. Creamer
Arthur Maxwell Field
C. P. Guess, Jr.

Dewey H. Johnson
Hugh C. Lane
Sam Latimer
Raymond Pender
W. B. Wilkerson, Jr.
Dear Dr. Poole:

I have the honor to transmit herewith the report of the Department of Fertilizer Inspection and Analysis for the fiscal year ending June 30, 1949.

Respectfully submitted,

H. P. COOPER, Director

The major activity of this department was the analysis of fertilizers as provided in the fertilizer law of the State. The department also made some analyses of waters, ores, minerals and other naturally occurring materials, portions of human bodies in cases of suspected poisoning (as provided by law) and insecticides.

A summary of the activities and accomplishments of the department for the fiscal year 1948-1949 follows:

Number of official samples secured ________________ 5,030
Number of official samples deficient (as of Aug. 10, '49) 182
Refunds to farmers on account of deficiencies ______ $7,461
Number of bags seized, other than underweights __ 4,906
Number of bags found underweight _____________ 14,328
Number of human stomachs analyzed ___________ 16
Number samples of water tested ____________ 33

The greater portion of the fertilizer samples, approximately 90 percent, were drawn from fertilizer and fertilizer materials located
on the farms. When a fertilizer was found by analysis to be deficient beyond the limits allowed under the law, the farmer was entitled to a refund from the manufacturer of three times the commercial value of the deficiency in the case of nitrogen and four times the commercial value of the deficiency in the case of phosphoric acid and potash. The farmer and manufacturer were both notified in each instance.

The annual printed report showing by companies the number of samples secured of each brand and grade along with the average analysis was prepared. In this report fertilizers not meeting the guarantee are listed in a separate column and designated by a black hand. The report, consisting of approximately 35 pages, is sent to all fertilizer manufacturers and dealers, agricultural workers and other interested persons.

Realizing the importance of acquainting the fertilizer manufacturer and dealer with the latest experiment station results pertaining to fertilizers and plant nutrition, a tour of the Edisto Experiment Station, Blackville, S. C., a branch of the South Carolina Experiment Station, was conducted on July 28. The 450 persons in attendance manifested a keen interest in the experiments.

Considerable time has been devoted by the Chemist of the department to analyzing official samples of insecticides submitted by the State Crop Pest Commission, as authorized and required by law. The tremendous expenditures by the farmer for insecticides for fighting the boll weevil and other insects has brought about an increased demand for these services and necessitated rigid controls to see that the guarantees are met.

Many letters were written to farmers and manufacturers in answer to inquiries and in relaying facts of value to them.

Cooperation of this department with county agents, extension specialists, and research workers at the college and branch stations, is, we believe, functioning advantageously for farmers and manufacturers.
Dear Dr. Poole:

I have the honor to transmit herewith the annual report of the Clemson College Livestock Sanitary Department for the fiscal year ending June 30, 1949.

Respectfully submitted,

R. A. MAYS, Director

Laboratory

The livestock and poultry industries continue to take advantage of the diagnostic services offered through the department's laboratory. It has been noted that more poultry and livestock owners each year are consulting the department for assistance in preventing diseases and also for diagnoses and suggested outlines for use in their flocks and herds. There has been a large increase in poultry specimens submitted for post mortem, bacteriological, pathological and serological examinations and tests. The field force of veterinarians is available in further assisting the poultry and livestock owners after a definite diagnosis has been made in the laboratory.

Newcastle Disease

It has been noted that more cases of Newcastle disease have been diagnosed by the Hemagglutination-Inhibition test on poultry specimens than during any previous fiscal year. The volume of the
report may not necessarily indicate that the disease has increased in proportion to the number of cases diagnosed. With improved laboratory facilities, the routine test to determine the presence of Newcastle disease has been made on a larger number of specimens than in previous years. This may account for the large increase of the number of farms on which the disease has been found. The use of experimental vaccine, in attempting to immunize birds against Newcastle disease, is being practiced throughout the state. A record is kept on all incoming shipments of vaccine and to whom shipments are made. In this way it will be possible for the department to check on the use of the new vaccine and, at the same time, draw conclusions regarding its effectiveness as an immunizing agent.

**Fowl Cholera — Typhoid and Paratyphoid**

According to post mortem and bacteriological examinations fowl cholera, typhoid and paratyphoid in chickens and turkeys have been diagnosed on quite a number of farms over the state. Heavy losses from these diseases are observed on farms where too many birds are confined to a small area during rainy weather, resulting in an unsanitary condition of the premises. Where local conditions are improved, along with bacterins injected early in the outbreak of this group of diseases, in conjunction with internal medication, the losses are usually held to the minimum. However, if any one of this group of diseases has made considerable headway in a flock of birds before a correct diagnosis is made, the losses in the individual group of birds may be very heavy.

**Pullorum Disease**

With the systematic multiple testing of breeding flocks, in order to eliminate carriers of pullorum disease, it has been noted that we find a gradual decrease in the number of birds affected with pullorum disease in laboratory work. This is due to frequent testing, better hatchery practices and proper brooding and sanitation on the farm. Notwithstanding a favorable report from the state as a whole, we find many individual poultrymen whose losses are heavy as a result of this disease. In most of these instances a careful study reveals that a weak link in the defense program was broken down, permitting infection to be passed on to the baby chicks.
Equine Encephalomyelitis

Equine Encephalomyelitis or sleeping sickness in horses and mules continues to cause losses among these animals along the lower sections of the state. Reports show that 237 horses and mules had the disease and 50 of these died. It is thought that perhaps the disease is transmitted from one animal to another by insects and this perhaps explains the reason for finding the larger percent of our cases in the lower section of the state. Very little trouble has been noted in the infected areas where susceptible animals are promptly inoculated with vaccine to prevent the disease.

Brucellosis

Brucellosis or Bang's disease is one of our major disease-control problems. The physicians are finding a larger number of cases of undulant fever in man each year and the consensus of opinion indicates that infected animals and animal products are responsible for all or practically all of these cases. In addition to consuming infected milk and other animal products, it has been noted that veterinarians, dairymen, butchers and others who handle infected cattle are very highly susceptible to the disease. Properly pasteurized milk and cooked meats are considered free of the organisms which produce undulant fever in man. Unfortunately this does not eliminate the possibility of the group of workers mentioned above from picking up the infection in handling the live infected animals on the farm. Progress has been made in eliminating the infection from many diseased herds, also, those previously reported apparently free of the disease, have practically all maintained this status. We now have 204 Bang's disease-free Accredited Herds in South Carolina and approximately 333 other herds under supervision which are in process of accreditation. During the year 59,960 cattle specimens were tested in the laboratory and of this number 1,192 showed positive reactions to the test and 468 of these animals were classified as infected. Some of the reactions were not actually infected animals, as blood tests made after injecting cattle with Brucella vaccine often shows a positive reaction to the test for several months, and in the case of adults, the reaction may continue for the life of the individual.
Supplementary Reports

Tuberculosis

A compilation of the tuberculin tests made by veterinarians in this state showed that Tuberculosis has gradually decreased during the year and that several herds were released from state quarantine. The ten herds under quarantine are being checked at frequent intervals in order to eliminate the infection. We have not found Tuberculosis in any cattle tested within approximately thirty to sixty days after arrival within the state, however, the disease has been noted in some cattle which had been imported into the state and retested one or more years after arrival. At this time we now have 99 Tuberculosis Accredited Herds in South Carolina. Records reveal 34 reactors in a total of 33,824 cattle tested during the past fiscal year.

Indemnity Payments for Cattle Affected with Brucellosis and Tuberculosis

The General Assembly made available additional funds to reimburse cattle owners, who are having their herds systematically tested under supervision, for part of their losses incurred as result of slaughtering diseased livestock. Cattle owners received state indemnity payments for 34 animals slaughtered as a result of tuberculin test reactions and 468 as a result of Brucellosis reactors. In practically every case where the state made indemnity payments, the owners of the slaughtered animals likewise received a similar payment from the Federal Bureau of Animal Industry.

Promotional Sales

With the tightening up of rules and regulations of the various states in order to prevent the admission of either diseased livestock or animals which have been exposed to diseases, we are being called upon to assist in determining the health status of more animals each year offered for sale through the various agencies promoting the livestock industry. Many of the states now require animals to come from herds in which all animals of the same species on the farm have passed negative tests within a short period of time prior to their admission into the state of destination. The assistance rendered in connection with these promotional sales is of much value to the future livestock industry.
Livestock Auction Markets

Many of the livestock auction markets within the state are under state supervision on a voluntary basis. With the supplying of additional funds by the legislature to extend our services, practically all markets will have a Deputy State Veterinarian at their markets on auction sales days. The services of the veterinarian will be furnished by the department. In this way the owners of newly purchased livestock may have them immunized against various diseases before they are added to their farm herds and such type service should be of inestimable value to the livestock industry in preventing and controlling contagious and infectious diseases of animals.

Enactment of Laws

The last General Assembly amended the laws governing the admission of livestock into the State of South Carolina in such a way that there will be better cooperation from farmers and others who purchase animals outside of the state. However, the amended laws definitely set up a penalty for those who bring in animals that do not meet the proper health requirements. Laws were also enacted authorizing the department to further extend its activities in the prevention, control and eradication of Tuberculosis and Brucellosis. The control of these diseases is being carried out as rapidly as possible in accordance with funds made available annually for these purposes by the General Assembly.

Deputy State Veterinarians

In addition to the full-time state employed veterinarians, the department has 83 Deputy State Veterinarians who are located in private practice throughout the state. In connection with the prevention, control and eradication of animal diseases, authority is given to call upon these men to assist with the work in their various communities and they are paid on a per diem basis in accordance with the length of time they work.

Health Certificates

During the year approved health certificates were received for 3,307 cattle; 1,293 hogs; 593 dogs; 865 horses and mules and 17 chickens. Periodic checks were made on many of the above shipments.
During the year health certificates were issued and approved for
out-of-state shipments on 1,569 cattle; 4,777 hogs; 1,434 dogs; 2,093
chickens; 248 horses and mules and 14 rabbits.

**State — County Fairs and Livestock Shows**

In order to promote the livestock industry the department co­
operated with State and County Fairs and many other livestock
shows by examining all animals for exhibition purposes to see that
only healthy ones were exhibited. This work was carried out with
individual livestock owners, County Agents, Agricultural Teachers,
4-H Clubs, F.F.A. Organizations and other local interested groups
of people. This service gives the livestock owner an assurance
that animals exhibited will not come in contact with other animals
which are carriers of contagious and infectious diseases.

**Educational**

The department continues to keep all interested agencies and in­
dividuals informed regarding educational improvements which
will be of value to the livestock industry in preventing animal dis­
eases. The latest information is disseminated through mimeograph­
ed and newspaper articles from time to time and by contacting
various groups and individuals throughout the state.

**Miscellaneous Services Rendered**

Representatives of the department made an average of more than
1,000 trips per month to farms within the state to assist with the
prevention, control and elimination of contagious and infectious
diseases among all species of livestock and poultry. In taking care
of these numerous requests for services and investigations, hogs
were immunized against cholera, tested for Brucellosis and treat­
ment recommended for the prevention and control of many other
diseases. Cattle were immunized against Hemorrhagic Septicemia,
Black-leg, Keratitis and tested for Brucellosis and Tuberculosis.
Also, many miscellaneous disease conditions were diagnosed and
proper treatment recommended. Many flocks of poultry were
treated against Fowl Pox, Cholera, Typhoid and miscellaneous
diseases. Assistance was rendered in several communities and on
individual farms in treating dogs to prevent rabies. Many horses
and mules in the lower section of the state were immunized against Encephalomyelitis.

Summarizing the above miscellaneous services, 112,084 hogs were treated against cholera; 3,367 cattle, against Hemorrhagic Septicemia; 3,495 cattle, against Black-leg; 1,051 cattle, against Keratitis; 18,188 chickens, against Fowl Pox; 971 dogs, against Rabies.

The General Assembly, Bureau of Animal Industry, U. S. Department of Agriculture, accredited practicing veterinarians, numerous public service agencies and individuals have cooperated with the department in animal disease prevention, control and eradication; enabling the livestock industry to make many worthwhile advancements during the year.
Dear Dr. Poole:

I have the honor to transmit herewith the Annual Report of the Crop Pest Commission for the fiscal year ending June 30, 1949.

Respectfully submitted,

H. P. COOPER, Director

Nursery Inspections

Nursery inspections were begun the latter part of June and completed in early September. The number of nurseries has increased from 130 in 1947-'48 to 188 in 1948-'49, while the acreage shows only a slight increase. These additional nurseries have added considerably to the amount of inspection work. The nurseries are located in forty-one of the forty-six counties of this state.

The nurseries inspected were in good condition and insect pests and plant diseases were not common. There were a few scattered infestations of aphids, red spiders, scale insects and leaf feeding insects.

Besides the regular nursery inspections, there have been numbers of inspections made for home owners who sell, through the mails, any surplus plants that they may have. Requests of this kind have increased during the year.

Greenhouse Inspections

The plants in 52 greenhouses located in twenty-five cities were inspected and certified one or more times during the year.
Parcel Inspections

During the shipping season, there is received at this office a considerable number of packages of plant material shipped by persons who wish to send them to friends or relatives in this or other states. For the sale of cuttings of various shrubs and flowering plants, there were issued 12,000 permit labels.

Registration of Out-of-State Nurseries

All out-of-state nurserymen have been required to file with this office signed copies of their nursery inspection certificates. These certificates signify that the nurseries have been officially inspected and the stock found apparently free of dangerous plant pests. During the year, 370 nurserymen registered for the shipment of nursery stock into South Carolina. These nurseries are located in twenty-eight states, making it imperative that the Commission be ever on the alert to prevent the introduction of dangerous plant pests.

Sweet Potato Inspections

Three inspections (field, storage and plant bed) were given the crops of 120 sweet potato growers during the 1948-'49 season. This required a total of 370 inspections for this crop alone. The fields inspected had a total of approximately 1000 acres, located throughout the state.

Several sweet potato growing states in which the internal cork disease is not known to occur have established quarantines against South Carolina sweet potatoes. Sweet potatoes having this disease do not break down as is the case with some diseases, but hard, black or brownish lumps of varying sizes may be found inside the roots. The disease is not easy to detect from the outside although slightly sunken areas are sometimes visible on the surface. Until it is satisfactorily controlled this disease will reduce chances of selling South Carolina seed sweet potatoes.

Irish Potatoes

The inspection of Irish potatoes to be used as seed, which entered the state through the port of Charleston, was made during
January. In 1949, most of the seed was shipped into Charleston in two shiploads. The potatoes came principally from Prince Edward Island, Canada, and the varieties examined were Sebago, Sequoia, Green Mountain, Irish Cobbler, Katahdin, and Pontiac. All of the potatoes were unusually clean and free of diseases. A small amount of scab, rhizoctonia and soft rot was present but no bacterial ring rot or other serious diseases were found.

Bees

Bees belonging to sixty-one individuals or apiaries and comprising 5,378 colonies were inspected. One hundred and sixty colonies were found to be diseased. The diseases found and the number of colonies affected in each case were as follows: American foulbrood, 127; European foulbrood, 23; Scabrood, 5; Paralysis, 2; and nosema, 3.

Bee inspections are made throughout the state; however, the larger beekeepers are located in the lower portion. Some disease is found in all parts of the state, but the percentage is low compared with that in many states. Good beekeeping methods play an important role in disease control and the inspector has continued to help the beekeepers by giving them advice and assistance where possible.

White-Fringed Beetle

In cooperation with the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture, work has been continued in an effort to eradicate the white-fringed beetle from South Carolina. In spite of efforts to limit the spread of the infestation in the city of Columbia, in 1948, one extension of the infestation was found, involving a block adjacent to the Five Points section. Since no infestations were discovered in additional localities, the close of the 1948 inspection season found only two localities which were known to be infested in South Carolina, Columbia and Winnsboro. In the city of Columbia, four separate infestations are known to exist. Although the result of efforts toward eradication during the year were largely negative, the inspectors were able to find specimens in both of the infested localities. No specimens were recovered in 1948 at the Geiger Street infestation in Columbia. The areas classified as infested in South Carolina in 1949 are as follows:
Columbia:
State Hospital — farm land, 15 acres, industrial area, 8 acres
Five Points — industrial area, 8 acres, residential area, 9 acres
Duncan Street — residential area, 3 acres
Geiger Street — residential area, 2 acres

Winnsboro:
Farm land, 49 acres, nurseries, 2 acres

Total Area Infested: 96 acres
Since these known infestations are relatively small, thorough-going control measures can be applied. Soil applications of DDT at the rate of 10 pounds per acre were made to 70 acres at Winnsboro and to 69 acres at Columbia. Applications of $\frac{1}{2}$ pound of DDT per acre were made to the foliage of plants on 116 acres during 1948.

Sweet Potato Weevil

The first weevil infestations were found in plantings of sweet potatoes in Charleston County during the fall of 1946, when surveys disclosed approximately 34 infested plantings north, west and south of the city of Charleston. At the time, heavy infestations were also found in the seaside morning glory, (which is related to the sweet potato) on Folly Island, Isle of Palms and Sullivan’s Island. Further surveys during the fall of 1946 and 1947 in 13 additional coastal plains counties revealed no additional infestations.

Believing that the weevil infestations were limited to the 34 plantings mentioned and that the source of these infestations was the seaside morning glory, non-planting zones were set up for the 1948 season. Spraying operations were begun in which DDT and 2,4-D were used along the beaches in an attempt to eradicate both the seaside morning glory and the weevil populations. The treated area consisted of a strip approximately 100 feet wide and 8 miles long. This treatment was continued through the 1948 season with considerable success both as to plant suppression and weevil reduction. In the meantime, in the areas from which it was hoped to eradicate the weevil, storages were cleaned and volunteer sweet potato plants were destroyed, thus freeing these areas from host material. Non-planting regulations were also carried out.
Complications arose in 1948 when infestations were found in a marsh morning glory in several locations within the restricted areas. In some instances this host was nearer former sweet potato plantings than was the seaside morning glory on the beaches. Limited surveys indicated that the marsh morning glory was confined to the quarantined area. A combination spray of DDT and 2,4-D was applied to the known infestations with results which were not entirely satisfactory. The marsh morning glory is difficult to treat because of its environment and characteristic growth habits. Many of the locations were difficult to reach with spray equipment, and other vegetation interfered with securing adequate spray coverage.

Eight hundred and fifty-two inspections were made in the counties adjacent to and in the infested areas. The results of the surveys showed no insects except in Charleston where 23 infestations were found in the quarantined areas. No additional spread of the pest was observed.

Phony Peach

The program for 1948 provided for (1) inspection of all peach nurseries and their environs; (2) a complete inspection of both commercial and home orchards in the area of commercial production, designated as the Ridge Section and embracing parts of the counties of Edgefield, Saluda and Aiken; (3) the inspection of previously infected and adjacent properties in the non-commercial counties having known active infections; and (4) inspections in the Spartanburg area to the limit of available funds and personnel. Inspections in the latter area were to cover all previously infected and adjacent properties having a current infection status. The area of complete coverage was to be expanded to include as much as possible of the northern half of the county.

In 1948 one nursery producing 40,000 trees was inspected in the phony peach regulated area. In addition, one nursery producing 5,000 trees was inspected in the non-regulated area. Since phony disease was not found within the environs of either of these nurseries, the stock was eligible for certification.

Orchard inspections were made in 8 counties, and trees with the phony disease were found in seven of these. A total of 2,216,089 trees on 1,320 properties was inspected and 718 trees on 120 proper-
ties were found infected with the phony disease. All infected trees were removed by the close of the inspection season. Phony disease was found in every county of the state in which inspections were made with the exception of Cherokee County. At present phony disease is not responsible for any appreciable economic loss in South Carolina, with the exception of one orchard in Edgefield County.

Both peach yellows and the peach rosette disease were observed in the Spartanburg area. Peach yellows was observed on 4 properties, three in Spartanburg County and one in Greenville County. This disease seems gradually to be spreading farther south. After having caused considerable damage for the past two or three years, rosette was less prevalent in 1948.

**Insecticides and Fungicides**

In the early days of boll weevil poisoning, there appeared on the market various remedies for the control of this pest, some of which were of little value. The Crop Pest Commission at Clemson, along with others interested, realized the need for protection to the farmer in the purchase of these materials, and drew up a document which was enacted into law by the General Assembly in 1923. This law provided for control of the sale, not only of boll weevil insecticides but also of materials used against other injurious insect pests and plant diseases. The enforcement of this law was delegated to the Crop Pest Commission in addition to its other duties under the "Crop Pest Act of 1912." The law was known as the "Insecticide and Fungicide Act."

Under this Act certain regulations were approved and promulgated by the Crop Pest Commission. Following its enactment and up until a few years ago arsenical preparations were the only insecticides used in the control of the boll weevil, and certain chemical and physical specifications were established for these materials. In addition to these specifications there were certain requirements concerning labeling, duplicate invoices, registration, etc. The office of the Crop Pest Commission has, from the time of the enactment of this law, required the manufacturers to meet these standards. In the early days of calcium arsenate, considerable difficulty was encountered until this material became standardized. Numer-
ous samples had to be taken and chemical analyses and density tests made. All samples were drawn by inspectors of the Crop Pest Commission and analysis and density tests were made by the Chemistry Department at Clemson.

After the manufacture of calcium arsenate became standardized, few if any, complaints were received of its inefficiency in controlling insect pests when properly applied. It was not until the advent of new organic poisons two years ago that apparent dissatisfaction began to be expressed.

Registration requirements have been continued through the years and at present 114 manufacturers or mixers have registered with the Commission. The total number of brands registered to date is 911. In the past the Commission has required only that copies of the labels used on the products sold in this state be filed with it. This label must show the names and percentages of the active ingredients and the percentage of the inert material. The filing of this label has been regarded as proper registration.
Dear Dr. Poole:

I am giving below a brief report of some of the investigations carried on by the South Carolina Experiment Station. Only brief statements regarding the various projects are given since most of them are reported in detail in the Annual Report of the Station. Copies of the latter are available upon request.

Respectfully submitted,

H. P. COOPER, Director

The rapid changes in South Carolina agriculture, resulting from increases in farm mechanization, have increased the demands for research. These demands are certain to increase in importance during the next few years.

Progress has been made in solving many problems and detailed results will be published in scientific papers, bulletins, and in the annual report of the Experiment Station. In this report only brief accounts of some of the major accomplishments will be listed.

Research by staff members is conducted at the college, at the six branch experiment stations, and on private farms where the problems are most serious.

Many farmers visited experiments at the various stations showing much greater interest than formerly.

Legume cover crops in peach orchards increased yields.
Progress in the development of mechanized equipment was shown at meeting at the Edisto Experiment Station.

Benzene hexachloride and Parathion gave encouraging results in the control of the plum curculio and oriental fruit moth on peaches. Benzene hexachloride is recommended for the petal fall and shuck off applications only, since later applications have caused undesirable flavor.

Wettable sulfur continues to be as effective as the new fungicides for the control of peach diseases.

Experiments with three new insecticide dust mixtures gave excellent control of the boll weevil. They were (1) 3 per cent gamma benzene hexachloride, 5 per cent DDT and 40 per cent sulfur, (2) 10 per cent chlordane, 5 per cent DDT and 40 per cent sulfur, and (3) 20 per cent toxaphene, plus 40 per cent sulfur:

A new and satisfactory sweet potato harvester has been perfected by the Agricultural Engineering staff.

Experiments with many herbicides on weeds indicated that practical control is possible.
New sweet potato harvesting plow with attached rods and vine cutting colter.

Foreign visitors examining new types of sesame (benne) at recent meeting at Clemson.
One man can dehorn a calf under one month of age with the electric dehorner in two and one-half minutes. There is no bleeding or ooze following the operation.

One hundred new calves have been successfully dehorned with a small modified electrical soldering iron.

Progress has been made in the breeding of improved types of sesame (benne), a new high oil producing crop. Experiments indicate that a non-shattering strain may soon be developed.
New Wheat Shows Disease Resistance

A new variety of wheat included in the testing program at Clemson in 1949 showed remarkable resistance to mildew and rusts, and topped the yield records of all other varieties in the test.

This variety, which has no name as yet, is the result of a cross between Leapland and Fronteria, the latter being an introduction from Brazil by the Bureau of Plant Industry of the U. S. Department of Agriculture. The new wheat is one of many promising varieties which are tested annually for suitability to this region under a cooperative program between the various state experiment stations and the U. S. Department of Agriculture's Bureau of Plant Industry.

Some of the most desirable heads of the new variety have been collected and will be planted in 1950 in an effort to further improve and increase the amount of seed.

The new variety is characterized by an extremely long head borne on rather tall, stiff straw having heavy foliage. Its disease resistance when grown with other varieties which have been seriously infested with rusts and mildew is striking.
The milling qualities of the new wheat are now being tested, and a possible release of seed of the variety next season as foundation seed through the South Carolina Crop Improvement Association is being considered.

**Downy Mildew Controlled on Cantaloupes**

Two organic compounds containing sulfur, Zerlate and Dithane Z-78, effectively controlled downy mildew on cantaloupes during the 1949 season at the Edisto Experiment Station. When applied as 8 per cent dusts at weekly intervals, they accounted for increases in total yield of nearly 50 per cent each in comparison with untreated plots. In addition, both of these compounds caused no apparent foliage injury. Tri-basic copper sulfate (10 per cent), usually recommended for downy mildew control, effectively prevented severe mildew damage but resulted in moderate injury to the foliage.

Fruits from vines which were protected by each of these fungicides were consistently more heavily netted and much higher in sugar content than those obtained from not-dusted plots. Many of the undusted cantaloupes were extremely low in quality.

In view of the fact that downy mildew was unusually severe in 1949, these results indicate that the two organic compounds, Zerlate and Dithane Z-78, should perform well even in years when mildew is very prevalent.

**Crossbred Calves Have Edge Over Purebreds**

In an experiment designed to determine the comparative value of Brahman-Angus crossbred calves and purebred-Angus calves, a three year average shows some advantage in favor of the crossbred animals. The test was begun in 1947 at the Coast Experiment Station when a purebred Brahman bull was mated with purebred Angus cows. At the same time, a corresponding number of similar cows were bred to a purebred Angus bull.

At the close of the 1949 calving season, thirty-three Brahman-Angus crossbreds and the same number of purebred Angus calves had been weighed at birth. The average birthweight of the crossbreds was 81.03 pounds, while that of the purebred Angus calves...
was only 66.15 pounds, a difference of almost 15 pounds in favor of the crossbreds.

Brahman-Angus cross bred calves. All under 7 months of age.

To date, weaning weights at seven months of age have been taken on thirteen calves from each group. Again the advantage lay with the crossbreds, their average weight being 483.5 pounds, as compared with 442.8 pounds for the purebred Angus calves. Thus, on the average, the crossbred calves were over 40 pounds heavier than the purebreds at weaning time.

Live grade, carcass grade and dressing percentage were determined for each animal in both groups. No significant differences between the two groups as regards these factors were observed. The carcasses of the crossbreds were slightly darker than those of the purebreds and showed less marbling of the lean meat. The average dressing percentage for crossbreds was 59.3 per cent, and 55.7 per cent for purebreds. The loss in weight between loading and slaughter was not determined, but a spot check showed that it was greater in the crossbreds, probably due to the fact that they were decidedly more nervous during handling.
Irrigated and non-irrigated corn in the same field at Clemson. The field received 10.16 inches of rain during the period July 9-20. The plot shown at the left received an additional 2 inches by irrigation as soon as it was needed. Both pictures were made July 29, and strikingly show the need and results of irrigation just 9 days after an excessively wet period.

**Pasture Experiments**

**Winter Pasture for Beef Cattle** — Southern farmers have recognized the value of good summer pastures for many years. The value of winter pastures, on the other hand, has not been fully appreciated. Their use is a relatively new development that is giving South Carolina cattlemen an advantage over their northern neighbors who must feed and shelter their cattle indoors for several months in the year.

During the past three years, the Animal Husbandry Department has been conducting tests with breeding cows on a winter pasture of rye grass and crimson clover. A few of the cows in the herd have been carried through the entire three-year period with no grain feed. In some instances, some of the cows have been kept in dry lot until after calving and then turned on the pasture.
These tests have shown the importance of early seeding. When the grasses were seeded the first week in September, the cattle were put on pasture the last week in November, while pastures seeded in late September were not ready for grazing until January. Early seeding permitted the cows to have approximately two months on the winter pasture before the calves were dropped. At weaning time the calves from cows which had been on pasture previous to calving weighed about one-half pound more for each day of age than calves of cows that were still on dry feed. The cost of feed for cows on winter pasture was less than that for similar animals fed in dry lot. However, the two most important advantages of the winter pastures were the reduced labor cost and the superior condition of the cows and calves carried on them as compared with those fed in dry lot.

Year-round grazing is attracting more farmers to beef cattle production in South Carolina. If it is intelligently planned and managed, there are greater possibilities for profit than have been gained from other methods of beef cattle production.
**English Rye Extends Grazing Season** — Green aphids often destroy small grains when they are seeded early as temporary winter pastures. However, observations have shown that the rye grasses are not seriously affected by aphids. Based on these observations, twelve acres of permanent pasture at the Coast Experiment Station were fertilized with 420 pounds per acre of 4-10-6 fertilizer and seeded on October 6th with 35 pounds of English rye grass and 20 pounds of regular crimson clover. The permanent pasture was composed of carpet and dallis grass, plus ladino and white Dutch clover. Due to weather conditions, the crimson clover made very little growth; however, the ladino and white Dutch clover (included among the permanent pasture plants) provided considerable grazing during the early part of the period.

Seven yearling Angus heifers were put on this pasture 70 days after seeding (December 17) and remained there for 104 days without additional feed of any kind. At the end of the period, the heifers had made average gains of 143 pounds each, or an average daily gain of 1.38 pounds each. A net return of $16.49 per acre was realized in 104 days from the treatment and the grazing season was extended to nearly ten months.
Dear Dr. Poole:

Enclosed you will find a brief summary of the annual report of the Extension Service. This division publishes a complete report of the Extension work which is available to those requesting copies.

Respectfully submitted,

D. W. WATKINS, Director

The Clemson College Extension Service

The Clemson College Extension Service is responsible for carrying out with all farm people of South Carolina the educational and demonstration program of the college and the United States Department of Agriculture cooperating. The primary duty of the Extension Service is to carry to farmers and farm homemakers the findings of research and experience in agricultural science, and assist them, through practical demonstrations and otherwise, in applying this information on their farms and in their homes to (1) adjust and balance their farm and home operations to meet rapidly changing economic, technological and social conditions; (2) conserve and improve the soil; (3) increase the efficiency of production of high yields of high quality farm products at low cost per unit; (4) produce home-grown foods necessary to provide adequate nutrition; (5) improve farm homes and farm buildings for comfort, convenience, and general appearance; (6) train farm boys and girls in the principles of good farming, homemaking, health, and citizenship; and (7) make the most efficient use of federal and state programs for agriculture; all to the end that South Carolina farm people may build a safe, sound, and progressive agriculture and rural life.
Progress in South Carolina Agriculture

Marked changes and adjustments are taking place in South Carolina agriculture. Farmers are gaining ground in their battle to conserve and improve their soils. They are increasing yields per acre and improving the quality of their crops. Cotton, tobacco, and truck crops systems of farming are being balanced with increased numbers of livestock per farm. The quality of livestock and the production of meat, milk, and eggs per animal is rising steadily. Substantial progress is being made in controlling crops and livestock insects, diseases, parasites, and other farm pests. Efficiency in production is being advanced through mechanization and the use of labor-saving practices. Rural electric lines are reaching more farms each year. Farm homes and other farm buildings are being improved for comfort, efficiency, and general appearance. Farmers are giving more attention to producing food and feed for better farm living.

Cash farm income reached a new high level of $334,983,000 in 1948. However, production costs in terms of land, labor, equipment and supplies were relatively high, and farm profits were dependent upon efficiency in production of high quality products and sound farm management.

South Carolina farm population decreased from 1,072,479 people in 1920 to 682,663 in 1945, a decrease of 389,816 farm people, or 36.3 percent. During this 25-year period the total population of South Carolina remained fairly constant, except for a normal increase. Yet, in 1920, 63.7 percent of the total population of the state lived on farms, while in 1945 only 35.8 percent lived on farms. This indicates that the greater part of the people who left the farms went into industry and other non-farm activities in the state.

The progress of mechanization on South Carolina farms is shown by the fact that the number of horses and mules on farms decreased from 297,741 in 1920 to 177,000 in 1948, a decrease of 121,000 horses and mules, or 41 percent. During this same period the number of tractors on South Carolina farms increased from 1,304 in 1920 to 22,031 in 1948, or almost 17 times, and the number of trucks used on farms increased from 1,736 in 1920 to 26,963 in 1948, or over 15 times. The number of mechanical cotton pickers in use on South Carolina farms jumped from 7 in 1947 to 90 in 1948. Other types
of farm machinery have increased in like proportion. The number of farms reached by rural electric lines increased from 4,763 in 1935 to 101,517 in 1948, or 21 times.

Cotton acreage has been reduced by nearly one-half during the past 25 years without materially reducing the total production in bales of cotton. At the same time the yield per acre has increased 65 percent, and the percentage of the cotton crop with one-inch or longer staple increased from 18.5 percent in 1928 to 97.9 percent in 1948. The **1948 yield of 377 pounds of lint cotton per acre is the third highest on record for the state.**

Due to seasonal conditions, prices, and acreage controls, flue-cured tobacco acreage has fluctuated considerably since 1920. However, yields per acre have increased steadily, especially during the past 10 years, and the quality of South Carolina tobacco is now rated with the best in the flue-cured tobacco belt. The **1948 yield of 1,250 pounds of tobacco per acre is the highest on record for the state.**

Small grain acreages and production have increased to a marked extent. South Carolina now produces enough wheat to supply the food needs of the farm people of the state, and produces more oats than any other southern state east of the Mississippi River. Small grain acreage was decreased somewhat in 1947 and 1948 by unfavorable weather conditions at seeding time.

Peanut production reached a new high level during the war years, and post-war production remains substantially higher than pre-war production. **Soybeans as a cash crop reached a new high level of production in 1948, mainly because of the development of shatter-proof varieties, which makes seed harvesting possible.** Hay production has decreased for the past several years, largely because of the growing practice of farmers to improve their permanent pastures, increase production of annual grazing, and allow livestock to harvest these and other feed crops in the field, and, thus, reduce the cost of harvesting and storing feeds. Lespedeza production for hay and seed has increased phenomenally during the past 10 years.

The acreage and production of sweet potatoes reached a new high level during the war, but the acreage has decreased since the war. However, the increase in production per acre since the war has
kept the total production of sweet potatoes at about the wartime level, except in 1948. The quality of sweet potatoes has been greatly improved during the past 10 years. The production of Irish potatoes has decreased to about the pre-war level from the high production during the war years.

The number of livestock, including beef cattle, dairy cattle, hogs, and poultry, produced on the farms of the state reached new high levels during the war, but has decreased since the war. This decrease is the result of several factors, among which are: (1) a normal decrease from high wartime demands for meat, milk and eggs; (2) high prices of animals for meat, which caused farmers to cull herds and flocks more closely and market poorer quality animals; (3) high feed costs, which made it necessary to cull out poorer quality livestock; (4) the decrease in farm population, which lowered the number of cows, hogs and chickens kept for home use; and (5) increased income of many farm families, which made it possible for them to buy meat, dairy products and eggs instead of producing them.

The fact that the quality of the livestock on the farms of the state has steadily improved is shown by the new high record production of 3,710 pounds of milk per cow in 1948, and the production of 111 eggs per hen in 1948, which is equal to the previous high record production of eggs per hen in 1945. Corresponding improvement is noted in the quality of beef cattle and hogs produced for home use and market on the farms of the state.

The production of turkeys on South Carolina farms reached a new high record of 446,000 in 1948.

Extension Activities and Results

Farm and Home Leadership: County farm and home agents had the active cooperation of 8,928 leading farmers and farm women, representing all farm neighborhoods and communities in each county, in planning and carrying out the 1948 agricultural program.

Of these farm and home leaders, 3,152 served on county agricultural committees, assisting in the development and conduct of county programs and plans of work, making decisions regarding agricultural policies affecting the counties, and setting up sub-committees to handle specific matters.
Each county agricultural committee elected one farmer and one farm woman to serve on the State Agricultural Committee, which cooperated with the director of extension and his staff in developing the agricultural program for the state.

**Reaching Farm People:** In carrying out the 1948 program of extension work, county extension workers made 117,417 farm and home visits to 70,494 different farms and farm homes . . . prepared 12,810 newspaper articles for publication, distributed 272,342 bulletins, and made 1,854 radio broadcasts in carrying up-to-date farm and home information to farm people . . . conducted 7,558 result demonstrations showing improved farm and home practices, and held or took part in 31,512 educational and demonstration meetings which were attended by 744,058 farm people . . . 130,833 farm people came to county extension offices and 110,544 called by telephone for information and assistance.

**Agricultural Economics and farm management** work consisted of furnishing farm people with outlook and other economic information . . . farm and home management demonstrations, farm account demonstrations, demonstrations of adjustment of landlord-tenant agreements to meet changes in agriculture, demonstrations of father-son partnerships, and assisting farmers in renting and buying farms.

**Home Management and House Furnishings** demonstrations by home agents included home safety, selection and care of home equipment, home lighting, kitchen arrangement, remodeling furniture, refinishing floors and woodwork, providing storage space, and arrangement of decorative objects. Much progress is being made by farm families in making their homes more comfortable, attractive and convenient.

**Agricultural Engineering** extension work was directed toward helping South Carolina farmers in mechanizing their farms and improving their farm buildings and equipment. Activities included furnishing plans for the construction and remodeling of farm buildings and structures, and assisting with their use; schools on selection, care, and repair of farm machinery and equipment; training 4-H club boys to operate and care for farm machinery; demonstrations in use of electricity on farms; demonstrations of terracing, drainage and irrigation; assisting ginners in installing and opera-
ting ginning equipment; demonstrations in cold storage, and assistance in artificial drying of hay, seed corn, and other farm products. South Carolina farmers are making rapid progress in mechanizing their farm operations.

**Soil Conservation** work included demonstration meetings to teach soil conservation practices, planning farms for soil conservation, soil conservation programs with 4-H club boys and girls, demonstrations of terrace construction and maintenance, drainage, cover crops, and other soil conservation practices.

**Field Crops, Fertilizers and Soils** work emphasized efficient production, harvesting, and storage of high yields per acre of high quality farm products, including cotton, tobacco, corn, small grains, hay, silage, pastures and annual grazing. Demonstrations of efficient use of fertilizers and lime were held throughout the state. Marked progress was made in development of permanent pastures and annual grazing program as basis for the expanding livestock and dairy industry in the state.

**Fruit and Truck Crops** extension work consisted largely of demonstrations of home gardens, market gardens, home orchards, commercial orchards, and truck crops. Pruning, spraying, fertilizing, and cultural methods were stressed. The production of improved Porto Rico sweet potatoes advanced under the program. Value of fruit and truck crops produced in South Carolina in 1948 was over $30,000,000.

**Livestock** production based upon the production of improved permanent pastures, annual grazing and other home-grown feeds, continues to gain ground on South Carolina farms. Extension assistance to farmers included selection of pure-bred sires, livestock breeding and sanitation, feeding, demonstrations, meat curing and canning, and marketing work with adult farmers and 4-H club farm boys and girls.

**Dairying** also continues to gain ground on South Carolina farms as farmers increase production of home-grown feeds, improved permanent pastures, and year-round grazing. The average production of milk per cow on South Carolina farms reached a new high record of 3,710 pounds in 1948. Assistance to farmers by extension workers consisted of selection of breeding stock, production and
balancing of home-grown feeds, organization and operation of eight artificial breeding associations through which 8,311 cows were artificially bred, efficient production of high-quality dairy products, 4-H calf club work, and marketing dairy cattle and dairy products.

**Poultry** extension work included flock management demonstrations, improvement of breeding stock, disease and parasite control, assistance to hatcheries, culling demonstrations, broiler production, turkey production, 4-H poultry club work, and marketing poultry, eggs, and turkeys.

**Food Production and Preservation** work included demonstrations and assistance to farm people in production of home-grown foods, and canning, curing, freezing, and other methods of conserving foods.

**Foods and Nutrition** work emphasized the preparation of balanced meals for the adequate nutrition of farm families. Home demonstration workers cooperated with the school lunch program in serving balanced, nutritious school lunches.

**Food Improvement** work was aimed at encouraging corn millers to enrich corn meal and grits with vitamins and minerals to improve the nutritional value of these food products which make up a large proportion of the diets of South Carolina people, especially low-income families.

**Rural Health** educational programs were conducted in all counties of the state, including stress on farm home sanitation, mosquito and fly control, rodent eradication, garbage disposal, drainage, immunization against preventable diseases, and adequate balanced diets.

**Farm Forestry** extension programs were conducted in cooperation with South Carolina State Commission of Forestry. Demonstration work included forest management, selective cutting and thinning of farm timber, timber estimating, log scaling, bow saw and power saw demonstrations, marketing farm forest products, reforestation, and forest fire prevention.

**Insects, Diseases, and Pests:** This program included assistance to 37,130 farmers in controlling crops insects, 10,518 farmers in controlling crops diseases, 605 in controlling screw worms in livestock,
and 25,178 in controlling rats and other pests. Educational demonstration programs were conducted on boll weevil control, treating homes and other farm buildings with DDT and chlordane, treating cattle with DDT, treating cotton seed and peanut seed for planting, and fence post treatment.

**Beekeeping** extension work consisted of demonstrations in transferring bees to modern hives, requeening with purebred queens, and shipping package bees.

**Clothing and Textiles** program included demonstrations and assistance to farm women and 4-H club girls in selection, construction, and care of clothing, providing storage space and proper storage of clothing, and care and repair of sewing machines.

**Home Beautification** extension work consisted of demonstrations of landscaping farm homes, rural schools, rural churches, and other buildings.

**Marketing** work by extension workers was aimed at assisting farmers in developing improved market facilities, and in producing, harvesting, grading, packing and marketing products of diversification in a changing agriculture. Market news service was issued in season on peaches and truck crops. Federal-State Shipping Point Inspection Service supervised on 6,521 cars of fruits and vegetables valued at $6,298,560. In all, 63,278 farmers were assisted in marketing surplus farm and home products to the value of $18,621,881.

**Four-H Club Work** reached a new high record of 45,104 farm boys and girls in 1,609 community clubs and gave them training in improved farming, home-making, health, and citizenship. Four-H club members grew cotton, corn, small grains, tobacco, truck crops, home gardens and home orchards, dairy calves, beef calves, hogs, chickens and turkeys. Girls canned and conserved food, prepared balanced meals, made clothing, beautified homes and improved home furnishings. Boys and girls were taught fire and accident prevention, music appreciation, handicrafts, and improved health practices.

**Publications and Radio:** Extension workers prepared 12,812 newspaper articles for publication, distributed 272,342 bulletins, and made 1,854 radio broadcasts to bring up-to-date farm and home information to farm people.
Visual Instruction work included the showing of educational motion pictures to 83,126 farm people, slides and filmstrips to 11,959 farm people, and the use of charts, maps, exhibits, and other visual aids to teach improved farming and home-making.

The 1949 Program of Extension Work

The 1949 Program of Extension work was developed with the cooperation of the 46 county agricultural committees and the State Agricultural Committee, and is summarized in the following 15-point statement:

1949 Agricultural Program For South Carolina

1. Farm Planning: Meet rising costs and possible lower prices by making the best use of land, labor, and equipment, and by planning efficient production to meet market demands.

2. Soils: Conserve and improve the productivity of soils through liming, proper fertilization, cover crops, crop rotations, and terracing, drainage and irrigation where needed. Cover South Carolina with a "Blanket of Green".

3. Food and Feed: Grow and conserve more food for home use. Grow a year-round garden on every farm. Increase efficient production of corn, pastures, annual grazing, small grains, silage and grain sorghums to support our growing livestock industry.

4. Farm Mechanization: Extend the efficient use and upkeep of improved farm machinery and farm home equipment, rural electrification and rural telephone.

5. Livestock, Dairying and Poultry: Continue to develop a larger permanent income from hogs, beef cattle, dairy products, chickens and turkeys through better breeding stock, closer culling, and better feeding and marketing.

6. Cotton: Meet competition from other areas and other fibers by producing higher yields per acre at lower cost per pound. Plant improved seed of recommended varieties. Use recommended poisons to control cotton insects. Improve preparation and ginning. Use grade and staple service in marketing.
7. **Tobacco:** Keep up yields per acre of high quality tobacco. Give more attention to control of plant bed and field diseases and insects and preparation of tobacco for market.

8. **Fruits and Vegetables:** Use recommended varieties and improved methods of production, grading, preparation, and marketing fruits and vegetables.

9. **Forestry:** Give farm woodlands better management and fire protection. Do a better job of marketing the timber crop. Reforest lands best suited to trees.

10. **Seeds and Plants:** Increase production and use of clean, high quality seeds and plants, including certified seed, for additional income and to aid in efficient crop production.

11. **Pests and Diseases:** Use recommended methods and materials in fighting crop and livestock insects, diseases, and parasites, household insects, rats, weeds, and other pests.

12. **Marketing Facilities:** Develop more and better processing and marketing facilities for farm products.

13. **Farm Buildings:** Plan and improve farm homes and other buildings for health, safety, efficiency, comfort, and general appearance.

14. **Farm Boys and Girls:** Further develop 4-H club work to train rural boys and girls in better farming and homemaking, health, citizenship and leadership.

15. **Health and Recreation:** Improve, develop and use rural health and recreational facilities.

**New Projects Underway**

**Farm Planning and Farm Management:** Plans are being developed to give increased emphasis to educational demonstrations in planning farms to meet the changes taking place in types of farming and farm equipment. This project will stress good land-use practices, balance of farm enterprises, efficiency in production and marketing, and good farm family living. Appropriate recognition is planned for farmers who meet basic standards on their farms.
Tree Seedling Planter: Extension workers are cooperating with research workers in developing a practical tree seedling planter that can be built by a farmer with the aid of a blacksmith, and used on tractor equipment which many farmers already have.

Pastures and Annual Grazing: The program on the development of permanent pastures and annual grazing is constantly being enlarged and expanded to meet the needs of South Carolina farmers in their efforts to expand livestock production based upon grassland farming.

The Artificial Insemination Program is steadily being expanded to reach more farmers and dairymen, and enable them to breed their cows from the best bulls of the breeds, and thus improve their dairy cattle.

Insecticides: New demonstrations are paving the way for the control of crops insects and diseases through the use of organic insecticides and fungicides. Demonstrations of more effective methods of application of these materials are being stressed on farms throughout the state.

Horticulture: Expanded demonstration work is underway on the control of watermelon diseases, principally Anthracnose, including a warning service to growers, and demonstrations of effective methods of control.

Rural Health: An organized educational program on rural health is being developed and expanded, with intensive work in pilot counties in cooperation with the State Health Department.

Marketing: An expanded marketing program is being developed through the use of Research and Marketing Act funds, and in cooperation with the South Carolina State Marketing Commission.