

disease and yield heavy annual crops with seldom a failure. The Shaw is the most desirable for eating out of hand. The Hood and the Pineapple while edible are better for cooking and preserving. Aside from our native wild plums we are limited to the Excelsior with Terrell the nearest second. The first is very satisfactory and quite dependable.

The fig seems to be our surest and ever present fruit, requiring little care and aside from root knot is rarely affected by disease. Several varieties are in general use. The Celestial, the best and most dependable, but with Brown Turkey, Lemon and Brunswick there is greater variety and a prolonging of season. For preserving the fig is perhaps the favorite in this section, of all fruits.

Among the fruits that should be universally grown where possible is the Japanese persimmon. It is adapted to most any kind of well drained soil and is an enormous producer of excellent fruit. Fully ripe and served cold with cream, it has few equals. Tane Nashi is of first rank. Okame, Tamopan, Triumph, Fuyugaki, Nectar, and Zengi, are desirable and will cover a season from August to January.

During the past thirty years very few seasons

have found me without some citrus fruit at Monticello. It has been necessary to take some precautions to make this possible though seldom has it been necessary to use heat. Trees on trifoliata weather most of our winters and have seldom been killed outright when in good condition. The Satsuma is, of course, the most certain fruit to survive but here it is possible to almost always have Grapefruit, Kumquats, Calamondin, Limequat, and some of the round oranges. The Satsuma is at its best in this section and should be more generally planted in a commercial way. I consider it no greater risk in middle north Florida than is taken in growing round oranges in Lake County.

When we add to the above fruits the various grapes that are adapted to our conditions, including those of the Muscadine type, the Pomegranate, Mulberry, Loquat, Blueberry and other small fruits is it not remarkable that so few of our people have yet become Fruit-Minded.

It appears to me that the time is ripe to instill into the owner of every home where a little plot of ground is available, the desire to have his own vine and fig tree and thereby add much to the sum total of his own happiness as well as that of those dependent upon him.

HORTICULTURAL AND OTHER ACTIVITIES OF THE COLLEGE OF AGRICULTURE OF THE UNIVERSITY OF FLORIDA

Wilmon Newell, Dean and Director, Gainesville, Florida

Those of us who are connected with the College of Agriculture of the University of Florida welcome the opportunity presented by this meeting to become better acquainted with the horticultural and agricultural activities in this part of the State and to establish contacts with those who are actively engaged in the development and upbuilding of this great section of our commonwealth.

As many of you have only infrequent opportunities to visit our institution at Gainesville and to become familiar with its work along agricultural lines, we have thought this might be an appropriate time to sketch for you some of our activities, laying somewhat more stress upon those

which have a more or less direct bearing upon your own section of Florida.

The College of Agriculture is but one of several colleges making up your state university, but in point of personnel and financial resources it is by far the largest. Its activities are not confined to the campus but reach every corner and nook of the state and it is safe to say that there is not a single farm or farm home in Florida today which is not utilizing either crops or practices emanating from this institution.

The College of Agriculture is engaged in the training of young men in scientific agriculture. It is also engaged, on an extensive scale, in research

work on the multitudinous problems of the farmer and fruit grower and it is further engaged in a systematic but widespread dissemination of information, on farming and home economics, to the rural people of the State.

First of all, a few words as to the education of Florida's young men for agricultural careers.

TRAINING OF YOUNG MEN

It may surprise some of you to hear that only a small percentage of our agricultural college graduates actually engage in so-called "dirt farming." However, such is the case, for agriculture offers today as fine and prosperous a career for the trained man as does medicine, law or engineering.

Graduates of agricultural colleges are in demand for service as county agents, as research workers in experiment stations, scientific institutions and the Federal Department of Agriculture, as teachers in the Smith-Hughes agricultural schools and as horticultural and quarantine inspectors. The teaching forces of the universities and colleges of the country must be steadily recruited from the ranks of college graduates. In addition, large fruit companies, by-product manufacturers and fertilizer and insecticide manufacturers must all have technically trained men.

It is not surprising, therefore, that most agricultural graduates do not go back to the farm and it is no reflection on either the college or the graduates that this is the case. These men are serving the farming industry—though indirectly—with the best of their talents and ability and contributing even more than if they were themselves actual producers of raw farm products.

The very practical man will want to know whether an agricultural education pays in dollars and cents. A survey made some time ago of the graduates of our agricultural college showed they were receiving annual incomes of \$4,389. This included those (8 per cent) actually engaged in farming, as well as those holding scientific or commercial positions. A similar survey made of the graduates of the Georgia Agricultural College by President A. M. Soule, showed them to be receiving average annual incomes of \$2,769 and that approximately three-fourths of them were receiving from \$3,000 to \$4,000 a year.

Until the demand for technically trained agricultural men can be quite fully satisfied, only a relatively small percentage of college graduates will actually engage in farming. However, in the latter field there are and will be endless opportunities and advantages to the farmer who has a college training. Agriculture today is undergoing marked changes. The successful farmer of today and of the future most not only know the principles of animal and plant breeding and the chemistry of soils and fertilizers but must also be versed in merchandising methods, business principles and agricultural economics. There is a steady trend towards concentrated farming—the operation of large units of land—using the best in science and engineering to the end that unit cost of the product may be brought to the lowest possible point. In this type of agriculture there will be no place for the untrained man, except as a laborer of the most menial sort.

To those of you who have sons approaching the college age, we would suggest that you investigate carefully the opportunities offered by scientific agriculture before deciding whether to start these boys off in some of the already over-crowded professions and vocations.

At the University we have, at the present time, 207 young men receiving their training in scientific agriculture. In addition to receiving a thorough fundamental education, these young men may, at their option, specially prepare themselves for work in Agricultural Chemistry, Agricultural Engineering, Agronomy, Animal Husbandry and Dairying, Botany, Bacteriology, Entomology, Plant Pathology, Horticulture, Landscape Design, Poultry Husbandry or Veterinary Medicine.

The doors are wide open for any others who are ambitious, earnest and properly prepared to take the most of the opportunities which you, as taxpayers, have provided for them at the University.

AGRICULTURAL RESEARCH

Research is vital to the success and prosperity of agriculture. This is true everywhere but it is particularly true in Florida because of the great variety of products, many of them highly perishable, which are produced within her borders.

The Florida Experiment Station, now a part of the College of Agriculture, has been rendering this service for forty-two years. In the earlier years it could make but little progress because of limited personnel and finances but in recent years has expanded in a gratifying way. Ten years ago there were but eight scientific workers on its staff. Today there are seventy-four. In 1920 there was but one experiment station. Today there are five and, in addition, there are eight field laboratories devoted to the study of problems peculiar to the areas in which they are located.

Among the accomplishments of the Station during past years the following may be mentioned:

The development of quick-maturing strains of the velvet bean, making possible the present wide utilization of this crop in Florida and other southern states.

The development of strains of wrapper tobacco highly resistant to the disease known as black-shank, thereby averting a threatened calamity to the shade tobacco industry of north Florida.

The development, in co-operation with the United States Department of Agriculture, of tomato varieties resistant or immune to nail-head rust.

Control of many Irish potato diseases as a result of studies showing that control is a matter of using disease-free seed.

In co-operation with the State Plant Board, research work which has shown that the activities of the citrus aphid can be largely curbed by cultural practices which regulate the appearance of new growth on the tree.

The introduction of a new crop into the agriculture of any region may have most profound effects. The Experiment Station, again in co-operation with the United States Department of Agriculture, has introduced *Crotalaria*, now found to be the best soil-building crop to date and possessing also promise of considerable value as a stock food and grazing crop.

A new industry, that of growing tung oil seed, is now in process of growth in central Florida and is the direct outcome of work done by the Station with tung oil trees during the period from 1912 to 1924.

However, the greatest value of the Station's work lies in the constant discovery and accumulation of agricultural knowledge which is steadily passed out to the farming population of the State and in the resulting substitution of exact, precise information for the guess-work of the past.

The research work of the Station covers many fields, including the newer ones of agricultural economics and home economics. The staff is at present engaged in active research work on some 145 major projects or problems. It is of more than passing interest to note that more than half of these, or seventy-seven, are of direct interest to West Florida. These may be classed under main headings as follows: Tobacco projects, four; agricultural economics, six; agronomy, nineteen; animal husbandry, seven; chemistry, five; cotton, five; insect problems, six; home economics, four; horticulture, twelve; plant diseases, seven; sugar cane, one, and rodent control, one.

One of the branch experiment stations and one of the field laboratories are located in this part of Florida. It should be explained at this point that branch stations and field laboratories are component parts of the University's experiment station system and the resources and personnel at the University are all brought to bear upon the problem being studied at the branch stations and field laboratories.

The branch experiment station at Quincy was created by Act of the Legislature approved May 10, 1921, and was established on a tract of twenty-two and one-half acres of land about a mile south of Quincy, upon which a substantial brick laboratory building was constructed, together with a tobacco barn, greenhouse, curing house and other equipment. Though its available funds have at no time exceeded \$16,000 a year, the workers there have nevertheless done outstanding work for the tobacco industry, including the development of tobacco strains resistant to black-shank, already referred to, and improvement of fertilizer and cultural practices. Precise and exact information has been secured on many operations in connection with the production and curing of tobacco which have been substituted, generally, for the rule-of-thumb methods formerly in vogue. Work is being steadily continued on these projects as

well as other tobacco problems. In addition, this station has been made use of (as far as available land permitted) for carrying out some of the comprehensive horticultural and agronomic work of the main station at Gainesville.

As a result of the interest of West Florida citizens the last Legislature provided a special appropriation of \$10,000 a year, for the current biennium, for enlarging and expanding the work of the Quincy station to make of it an institution devoted to general agricultural problems of West Florida. Ten thousand dollars of this appropriation has just been expended by the Board of Control in the purchase of 603 acres of additional land of most excellent character. A few thousand dollars more will have to be expended in building, fences, roads and clearing before actual experimental work can be gotten under way on this property but, with continued support by the legislature, we expect within the next two years to have under way at Quincy rather comprehensive experiments with horticultural and field crops which should yield results of much value to this region. Funds permitting, it is also our expectation to initiate live stock work at the same station.

The field laboratory at Monticello was established in 1927, through the liberal and substantial assistance of local interests, and has brought to light much practical information relative to the control of the diseases and insect pests of the pecan.

Aside from its work at regularly established stations and at its field laboratories, the Experiment Station has found it advisable and practical to conduct field investigations in co-operation with interested farmers and growers over the State. In West Florida work of this nature is in progress in connection with fertilizer studies, summer cover crops, winter legumes, cotton and corn fertilizer experiments, variety test work with farm crops and fruits, and cover crop tests and other work with pecans. These field experiments are so conducted as to furnish exact information to the Experiment Station in connection with its research investigations. They are, at the same time, excellent local demonstrations of the value of the practices under investigation. Farmers in almost

all of the principal agricultural counties of West Florida are now co-operating in this work.

Finally let me say that the agricultural problems of all sections of Florida are of tremendous interest to the Experiment Station and its staff of workers. We are delighted with the prospect of expanding our work in Northwest Florida and we hope, with your co-operation and continued interest, to serve you more effectively in the future than has been possible, with our limited facilities, in the past.

INFORMATION FOR RURAL PEOPLE

The new information being constantly brought to light by the experiment stations would be of little use if it were not made available for the farming population as a whole. There are many thousands who, for various reasons, cannot come to the University to get this information; nor have they time to come and sit in class rooms and listen to the lectures.

Therefore our College of Agriculture, like every other agricultural college in the United States, has a special division or organization for making this knowledge available and applicable on the farm and in the farm home. It is called the "Agricultural Extension Division" and is best known to you through its representatives, the county agents and home demonstration agents, in your own counties. They are the field representatives of the College, the people who come in daily contact with the farmers and farm women, bringing to them not only accumulated knowledge, but also the latest and most improved methods. Back of these agents is the entire United States Department of Agriculture with its personnel of over 18,000 people. Back of them also, is the Florida State College for Women, as well as the faculty of the University at Gainesville and the scientific staff of the experiment stations.

The county and home demonstration agents are assisted in their work by district agents, or supervisors, and by specialists in boys' club work, citrus diseases and insects, poultry husbandry, dairying, nutrition and foods and marketing.

The agents initiate and carry through, in co-operation with the farm people in their counties, definite programs in soil improvement, farm crops,

horticulture, forestry, rodent control, insect and disease prevention and control, animal husbandry, dairying, poultry raising, rural engineering, agricultural economics, home gardening, foods and nutrition, sanitation, clothing, home improvement, food conservation, utilization of surplus farm products, home manufacturing, farm and home accounting, and community betterment. In these activities, during the past year, 4,754 rural communities participated.

Time does not permit of discussing the beneficial results of these activities, but one or two examples will illustrate their value.

As a result of the emphasis placed on soil building in north and west Florida by using hairy vetch and Austrian winter peas, the acreage of these crops increased from ten acres in 1925 to 5,500 acres in 1930. The estimated yield in 1929-30 was 20,000 tons of green material, or an average of about 8,500 pounds per acre. Where corn followed the plowing under of these crops an increase of from ten to thirty bushels per acre resulted, or an increase over check fields of from 100 to 200 per cent.

During the year, 6,312 women were enrolled in home demonstration work and adopted improved home practices, made improvements in the home or manufactured articles for sale. Six thousand four hundred and fifty-one homes improved sanitary conditions and 9,877 homes were beautified in accordance with the home demonstration agents' advice. Two thousand one hundred and eighty women and girls received instruction in craftsmanship. Women and girls in the

home demonstration clubs preserved or canned 993,691 quarts of fruit, meat and vegetables and dried or cured 1,132,418 pounds of the same materials.

Extension education also includes the farm boys and girls banded together in 4-H Clubs. These clubs last year had a total membership of over 13,000. The boys are taught not only agricultural information, but the principles of health, manliness and good citizenship. Girls are instructed in gardening, clothing, health principles and various phases of home economics.

Nor is this work limited to the white population. Similar educational work is carried on with negroes in 14 counties, using for the purpose colored demonstration agents, both men and women.

The Florida National Egg Laying Contest at Chipley, operated by the Agricultural Extension Division, has shown, as nothing else could do, that Florida climate and conditions are eminently suited to poultry and egg production.

In conclusion, let me say that visitors are at all times welcome at any and all of our field laboratories and branch experiment stations, as well as at the University at Gainesville. If those of you who live in this section of the state cannot conveniently visit Gainesville we hope you will at least avail yourselves of the opportunity of visiting the branch experiment station at Quincy, the pecan laboratory at Monticello, the Florida National Egg-Laying Contest at Chipley and, during the summer operating season, the 4-H Club camp located in the Choctawhatchee National Forest.

SATSUMA ORANGE FERTILIZATION

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In looking through the literature on fertilization for the past fifteen years we were unable to find a single reference to the proper way of fertilizing Satsumas. Apparently most of the experimental work with Satsumas has been done by the growers themselves. When we began to study Satsuma fertilization we found the growers almost unanimous in the opinion that it was not safe to apply fertilizer after July, and some

thought May should see the last application of fertilizer. The general practice was to apply three applications a year, in March, May and July. Practically all growers agreed that a complete fertilizer should be used but differed widely in the proportions of the different elements, except phosphoric acid which all set at eight per cent in the mixture. As sources of nitrogen many favored cottonseed meal. Some thought kainit a