VIRGINIA

1921

# HORTICULTURE

Project 7

Blacksburg, Virginia.

October 28, 1921.

Director Jno. R. Hutcheson,
Extension Division, V. P. I.,
Blacksburg, Virginia.

Dear Sir:

I beg leave to submit herewith a report of the extension work conducted by the Department of Horticulture of the Virginia Polytechnic Institute for the year ending June 30, 1921.

## Personnel

The Horticultural Extension staff during the past year has consisted of G. S. Ralston, Horticulturist - employed one-third time - F. A. Motz and Kent Apperson, full time assistants, and Hugh Ross, half time assistant. Mr. Ross resigned June 30th to accept a teaching position in connection with the work of the Veteran's Bureau.

## Lines of Work

The authority for the extension work in horticulture is vested in a general project or agreement of understanding to the effect that all activities connected with the production and marketing of horticultural products may be included in the cooperative extension work.

The general work was divided into several distinct lines early in the development of the work to facilitate organization and administration. From time to

time additional lines have been added. At the present time several major and minor lines are in active progress. These lines of work are as follows:-

## Major Lines of Work

1. Orchard Management - supervisory
2. Orchard Management - advisory
3. Pruning Demonstrations
4. Demonstration Visits
5. Club Work in Tree and Small Fruits
6. Insect and Disease Control
7. Horticultural Exhibits
8. Grading and Packing
9. Fruit Growers' Organizations
10. Sweet Potato Production and Storage
11. Small Fruits.

## Minor Lines of Work

1. Rodent Control
2. Orchard Fertilization
3. Establishing Orchards
4. Home Gardening
5. Landscape Gardening
6. Information and Inspection Trips
7. Farmers' Schools

While the various lines of work in active progress are distinctly set apart in the report, it is obvious that they are more or less interrelated; some lines being almost dependent upon others for successful operations. For instance, uniform grading and packing and uniform control of insects and diseases are bound up almost inseparably with fruit growers' organizations. At the same time, they are distinct lines and the one only offers a means of facilitating and making more effective the operation of the other.

The division of work listed as major and minor lines unquestionably will vary from year to year, due to conditions, popular demand and to the special training of the staff which has much to do with the choice of lines of work during any one year.

The publicity concerning this type of work was largely included in letters of information sent out regarding orchard operations or through newspaper articles wherein the facts called to the attention of the growers were largely derived from results in the demonstration orchards. In this connection 20 letters of information and 3 general articles were written. 1 fair exhibit, illustrating the work under this head, was shown.

During the past year 8 meetings under this line of work were held at the instance of the horticultural specialists with an attendance of 234 people. It should be understood that these were not the only people reached since the management orchards are well known throughout the community and are viewed and visited from time to time by many people. In this way and by the comment of the cooperator, the results are well known and the influence of the work quickly spreads to adjacent orchards.

This line of work is established in 15 counties at the present time. Agents are located in the majority of these counties.

Considerable leadership is developed due to this type of work.

As mentioned before, the scope of this work is lessening rather than broadening due to the fact that other means of reaching the people are more effective. However, 4 new orchards have been added this year. This was done in order to meet special conditions in certain sections. As a whole the orchards were reduced from 54 in 1919 to 19 in 1921.

Many of the orchardists in the large fruit growing sections have modified their management directly or indirectly on account of the demonstration orchards. In this way a very large area has been influenced, although probably not more than one thousand trees are included in the management demonstrations.

Orchard Management - advisory.

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from year to year. Furthermore, some of the larger orchardists asked for the same assistance. The larger orchardists realized that the personal supervision could not be given but that advice concerning the plan of work for the year could be determined within a reasonable length of time. This work is developing to a greater extent as time goes on. The same organization within the College has been established as mentioned for orchard management, supervisory; that is, cooperation exists between Departments which relate to fruit growing and in the divisions of the College interested in agriculture. In connection with this work there have been 18 special meetings at which one or more agents were present and 105 county conferences with the county agent usually present. There have been 18 different conferences between the various College workers who are located at the College and interested in this work.

While no local organizations have been formed to assist in the development of this work, plans are frequently discussed before the members of existing organizations. The very nature of the work means that it must be taken up with individuals rather than organizations. In carrying on this work 95 letters of information have been sent out. This usually consists of written directions for the year's work or modifications of such directions as were previously given on account of certain changes in conditions.

38 counties, including duplications, have been visited in connection with this line of work and 25 agents have been visited. It is definitely known that 77 fruit growers have been interested enough in this work to modify their plans of work accordingly. 55 visits have been made to the 19 orchards which are included in this line of work.

The acreage involved in this line of work is considerable; the total is not at hand but it is probable that at least 3,000 acres of orchard are involved. The influence of this work is growing and the methods are practiced in many of the adjacent orchards. No attempt will be made to give the number of these since it is impossible to determine fully where the grower obtained the information. It will suffice to say that orcharding commonly improves in all the surrounding orchards after this work is well under way.

Pruning.

Pruning has been one of the major lines of work in practice during the last six years. During the first two years this and orchard management demonstrations were the major lines of work. The constant followup was necessary since the initial pruning in most cases was corrective in nature, consequently, the pruning treatment varied from one year to another in order that the tree might be brought into correct fruitage.

The organization necessary to conduct this work is largely effected with the County Agents and through them with such fruit growers' organizations as are already established, or with farmers' organizations, such as the Farmers' Union, Farm Bureau, or with groups of farmers. Meetings are frequently held at county schools where the farmers and their children attend the demonstrations. In connection with this work meetings have been held with 20 agents; 5 meetings have been held at the College to determine methods and 6 special conferences have been held in the State with organizations. Also 5 meetings have been held in the State with committees appointed by the fruit growers for this purpose. 37 letters of information, 1 circular letter, 4 press articles and 1 general article have been written in regard to the pruning work. Visits were made to 34 agents and to 55 counties - this includes duplication. 83 farmers' meetings or demonstrations were held which were attended by 1,543 people. No attempt will be made to tell the number of trees that were pruned or number of orchards in which pruning took place. It is, also, impossible to state how wide an area was influenced by these methods. It is safe to say, however, that the average pruning in Virginia has improved wonderfully in the last five years. Much of this is due to the work of the Horticultural Division through the horticultural specialists and County Agents. It has been given further impetus due to the fact that the fruit growers have been quite prosperous during most of this period.

In addition to public demonstrations, 93 demonstration visits were made to give pruning advice and demonstrations.

Demonstration Visits.

The work known as demonstration visits consists of a visit to an individual citizen to give him special advice in connection with some phase of horticulture. This is an essential part of the work of the horticulturists. Under ordinary circumstances, a special trip is not made, although in case of emergency every effort is made to give the matter immediate attention. Under the general plan of procedure these special calls for work are listed as they are received and when a trip is planned all special requests coming from the section visited receive attention. This prevents duplication of travel and loss of time.

The demonstration visits are generally listed under the special type of work in which they naturally fall, such as pruning, rodent control, disease control, etc., and need no further special mention. This type of work has proven most popular and effective and it has spread the influence of the extension work over a large area.

Club Work in Horticulture.

The Horticultural Department gave personal assistance in boys' and girls' clubs this year for the first time. Heretofore, written advice regarding vegetable growing, vegetable exhibits, etc., made up the work in this line.

The work was not undertaken on a large scale and the almost total loss of fruit further limited the scope of the work for this year.

The working organization is largely built up in connection with the club leaders in the State and the County Agents. Small fruits and a lesser number of tree fruit clubs will be included in the work. Since the garden club work is well established it does not require the assistance that is demanded in the other lines. The club work is closely related to several other lines of work such as small fruits, insect and disease control, and others. Much that has been done in this connection is included elsewhere. However, at least 3 special meetings have been held with the Home Demonstration Agents, 1 general meeting with the County Agents, several conferences with County Agents, and 2 or 3 meetings with farmers.

6 club work projects in fruits were established this year. Due to loss of fruit only 1 demonstration was continued throughout the season. However, so much time has been given to the work that it is certain that plans are already developed to enlarge the work next season, particularly in the case of small fruits. Since the work in gardening is largely under charge of the Home Demonstration Agents and the work given by the horticultural specialists was very general, it will not be included in this discussion.

4 press articles and 1 large letter of information concerning vegetable exhibits and judging of vegetable exhibits and a club record book was prepared during the year.

Insect and Disease Control.

This is one of the most important lines of work under charge of the horticulturists. Unfortunately, the State has become badly infested with injurious parasites and the production of high grade products is impossible unless control measures are carefully practiced. This condition has been aggravated by the introduction of apple scab into what has heretofore been almost an immune district, to the development of a third brood of codlin-moth, or perhaps to a long emergence period of the second brood, where only two have been known up to last year, and to the general prevalence of cedar rust over large areas.

Close cooperation is maintained between the Departments of Entomology, Pathology and Horticulture. The Department of Chemistry has given some valuable assistance in this work. Due to the prevailing conditions, the Department of Entomology has located two men to study the economic insects of tree fruits in different sections of the State. This was brought about through the requests of fruit growers' organizations as influenced by local leaders and others who are in close touch with the horticultural specialists.

The work along this line is carried on with the assistance of the County Agents, through all sorts of farmers' organizations, but more particularly with fruit growers' organizations, such as the Virginia State Horticultural Society; district organizations,

such as the Piedmont Fruit Growers' Association, Roanoke Valley Fruit Growers' Association, and with more nearly local organizations, such as the Frederick County Fruit Growers', Amherst County Fruit Growers', etc., and also with individual fruit growers.

This work has been discussed at 2 agents' meetings and at 12 conferences at the College, and at 31 conferences in the State. 3 meetings have been held with executive committees of fruit growers' organizations. No special organizations have been effected to assist in this work, although the Frederick County Fruit Growers' organization was primarily effected to provide means of controlling cedar rust.

Considerable inspection work has been done in order to determine effects of various treatments on disease control, to learn prevalence and virulence of certain diseases, efficiency of labor, etc. This is necessary in order that information given out for the succeeding year will be effective.

243 letters of information have been sent out relative to insect and disease control. In this connection 1 circular letter, 9 press articles and 2 bulletins have been written. The bulletins in question deal with insects and diseases of the garden and orchard and their control and a mimeographed spray calendar which is issued in connection with the State Horticultural Society.

11 meetings attended by 725 people have been held; 23 agents were visited; 4 spray demonstrations attended by 35 people were given; 87 orchards were visited; and 29 counties were personally reached. It is probable that at least 35 orchards were under the special management of the extension work in so far as spray treatment is concerned. Results of this work are felt in at least 75% of the commercial orchards of the State and also in many home orchards. The condition of at least one million barrels of apples is affected in greater or lesser degree by this line of work.

Horticultural Exhibits.

Horticultural exhibits are held from time to time according to the need of arousing further interest in any line of work. This is one effective means of increasing interest along some desired line.

The exhibits are made in cooperation with the County Agents and with County or larger Fair Associations, banks, horticultural meetings, etc.

It has been found that the County Fair is an excellent medium through which the need or possibility of certain lines of work of local interest may be advertised. The State Fair exhibit must be general in nature rather than designed to give detailed information. This work the past year has been limited to State Fair exhibits, State Horticultural Association meeting, and assistance in putting up various Fair exhibits which were both educative and competitive in nature. It is the opinion of the Department that such work should be increased at the County Fairs, that it should be largely educative and that the faults in competitive exhibits should be pointed out to the exhibitors. However, the State Fair and the Horticultural Society meeting offer excellent opportunities for constructive work, particularly when any new line of work of especial importance is introduced.

Grading and Packing.

One of the greatest needs of Virginia horticulture is a more uniform and higher standard of grading and packing. This work has been going on for years and unquestionably the standard of excellence is improving. At the same time, it varies from year to year according to conditions and demand for the fruit. In other words, it is not yet uniform. Probably uniform grading and packing cannot be attained without close cooperative effort of the largest percentage of the fruit growers and the success of grading and packing is also dependent upon economic, good production. All this seems to be bound up closely with the formation of fruit growers' organizations and cooperative grading and packing. The need of this work is becoming more imperative as keener competition develops from outside sources. In the development of this line the horticultural specialists are attempting to work with existing organizations, to have other organizations set up, and to cooperate with selling organizations, etc. This work is done in connection with field representatives of the Extension Division, including County Agents, District Agents, individual fruit growers and growers' organizations.

20 letters of information; 1 press article; 1 window display and 1 fair exhibit have been given out or prepared this year relative to grading and packing. 10 farmers' meetings with an attendance of 267 were held; 5 demonstrations with an attendance of 77 were given; 5 demonstration visits have been made; perhaps 14 or 15 local leaders have received some training; 8 counties were visited; 60 orchards were reached, and 4 agents were visited. 2 special lectures with an attendance of 80 were also given. It is impossible to tell how wide an influence was exerted by these means. Unquestionably, considerable results were effected, but at the same time the requests for special methods of grading and packing from the buyers, the extremely low grade production in the case of apples and other factors have tended to limit the success of the work. At the same time, the sentiment of the fruit growers is leading towards better methods. The work will proceed faster as the sentiment develops. It would not be surprising if definite steps leading to standardized grade and pack might be taken during the next year.

Fruit Growers' Organizations.

Perhaps no other factor in getting results is as important as the organization of the producers who are interested in a certain line of work. If the organization is promoted along the right lines, that is organized on the industry rather than on an individual, there is an excellent opportunity to develop permanent work. By this means the producer himself takes an active interest in the formation and success of the work under way. Unquestionably, all operations connected with production would be much more effective were they taken up as a plan of development by an organization rather than being urged upon individuals who had not given the matter thorough study. At the same time, there would be a neighborhood responsibility for the work that is not found in communities where the producers themselves have not helped to build up the work.

The horticulturists of the department have felt that the goal that they are seeking cannot be reached without some sort of cooperative work among the growers. With this in mind, they are seeking to have the growers club themselves into organiza-

tions. No special type of organization is held to be right at the expense of all others. The general plan is to meet with a few prominent growers and discuss the type of work that they feel is most needed and present whatever plans the horticulturist has in mind. Then after some definite decision is reached, the matter is presented before the growers at a general mass meeting and plans are drawn up to make effective working machinery.

The area involved may include a community, a county, a district, or it may be state wide in so far as the general plan is concerned. The county has proven an effective working unit so far. This is perhaps due to the fact that the problems of one individual of the county are commonly the problems of neighboring growers and for this reason there is much common interest.

Up to the present time the horticulturists have made no endeavor to put in selling organizations, although they are in favor of this movement and will give all efforts to help complete such a movement provided it meets with the approval of the growers who are needed to make the organization a success and if the working plans have reached the point that they give promise of success.

6 meetings have been held with agents to consider such organizations. 11 conferences have been held with the College men. 43 conferences have been held with fruit growers and 3 meetings with committees appointed to work out plans of organization. 22 letters of information have been written and also 2 press articles.

1 county organization and 1 local organization have been formed the past year -- namely, the Amherst County Fruit Growers' Exchange and the Salem Division of the Roanoke Valley Fruit Growers' Association. 10 agents and 15 counties have been visited. Probably 70 fruit growers are included in the two organizations.

In addition to this, existing organizations were given all possible assistance. 14 farmers' meetings were held and 500 people addressed.

Sweet Potato Production and Storage.

This year for the first time since the extension work was established in Virginia organized work has been undertaken with the truck growers of the State. Heretofore, the extension activities have been confined to home orchard and home garden work and general information in all but the commercial fruit growing sections of the State. This left a large area of the State without special help in advancing the production methods and care of the lines of horticulture involved in this large territory.

In the beginning the situation was studied carefully and it seemed that assistance in sweet potato production and storage would be the most promising field for extension work in truck crops. Virginia produces a large quantity of commercially sold sweet potatoes. The majority of these are sold in the green state at or soon after the harvest season. Unless good market connections are formed, the growers are liable to sell their potatoes without any particular financial profit. If the potatoes are stored in the ordinary way and held until a higher priced market season, a great loss is commonly suffered due to loss from various diseases and poor storage conditions. Out of the annual production of approximately 5,000,000 bushels nearly 2,500,000 were lost by poor methods of production and storage in the season 1920-21. These factors and poor stands due to diseased seed stock have tended to limit the commercial production largely to the Eastern Shore and Norfolk districts under organized methods of marketing with a smaller industry grouped about the larger eastern cities.

In addition to better production and storage where the industry is established, it is proposed to urge increased production of high grade potatoes in the counties adapted to this purpose on the mainland of the State. The work necessarily includes seed selection, seed treatment and seed bed treatment to limit the production of infected slips, the selection of the proper varieties, the introduction of improved cultural methods, the proper harvesting of the potatoes, the erection or remodeling of houses at proper points to conform with proper curing and marketing of crops.

Trips were made through the State, through the South, to Washington and elsewhere to learn the most improved methods necessary to successful sweet potato growing, storage and marketing. It is proposed that this work be effected largely through farmers' organizations. This work was begun in late winter with the assistance of the County Agents, the Norfolk Truck Experiment Station and the pathologists and entomologists of the Agricultural College. Much help was given in this work by Professor T. C. Johnson of the Norfolk Truck Experiment Station and his associates. This work met with the approval of the sweet potato growers and other people connected with the industry. The bankers in the sweet potato communities are much interested in the work and give promise of material assistance in developing this work.

Unfortunately, a great majority of the sweet potato growers were not in a condition to incur any considerable financial outlay. In spite of this fact the work has made considerable progress, in fact has developed into one of the most popular lines of effort, and much has been done in seed selection, seed treatment, etc., and in undertaking the production of certified seed.

This line of work was discussed before a general meeting of the County Agents and later 18 different meetings were held at one time or another with agents in the sweet potato districts. Conferences with growers were also held at various times; 24 in all during the year. As the work developed, 5 committee meetings were held in the State to discuss organization plans, building plans, etc. 6 letters of information and 7 press articles were sent out. These related largely to methods of selecting seed, treating the seed, methods of cultivation and storage. One organization was formed for cooperative storage and 2 others are in formation with every prospect of ultimate success. 2 new houses have been built and 5 or 6 houses have been remodeled. 3 houses will be under the personal supervision of the Extension Division during the harvesting and curing season. Considerable advice has been given regarding other questions. It has been necessary to restrain rather than urge the extension of the work at this time due to the lack of available help to insure success. 7 seed

selection demonstrations were given; 4 seed beds were built; 31 seed beds were inspected; 5 field inspection trips were made; 9 farmers' meetings, with an attendance of 590, were held; 4 agents were given some special assistance in the sweet potato industry and perhaps 8 local leaders developed. 16 agents have been visited in connection with this project; 83 farmers were included in the work that received personal attention this year. 85 acres have been grown largely under the supervision of the Extension Division. Many people were reached through correspondence. An organization at Waverly, which was formed for production and storage of potatoes, contemplates the growing of certified seed and slips the coming year. They have decided to add an additional storage building to hold the seed potatoes.

This beginning is probably a small, even though important step, as Mr. A. G. Smith, who will take charge of the trucking work in full beginning with January 1922, has already formulated plans leading to comprehensive seed certification work in the State under competent authorities. At the same time, the work done at Waverly gives a central point from which good seed may be obtained and it shows that the growers themselves appreciate the importance of this work. The necessity of work in seed certification was discovered through inspection of potato seed beds last spring and inspection through the summer of fields in which diseased seed were used to produce the crop. The growers thoroughly appreciate the importance of selection of disease-free seed.

There should be no difficulty in developing this line of work into one of great monetary value to the people of the State. The general proposition now is to produce high quality potatoes that may be stored and sold at the season of high prices. It also affords the opportunity of building up a new money crop in many sections that now rely largely on tobacco for a money crop. This line of work has progressed to our utmost satisfaction. Already there is talk in two counties of building up a big industry of fancy quality products sold under a brand name.

Small Fruits.

The small fruit project was initiated the past year and is designed to reach a large area of the State. The object in organizing this work was to stimulate a greater interest in this line of horticulture and thus have plantings increased so that the needs of Virginia along these lines can be largely supplied from within the State. To attain this ideal, the selection of proper varieties, proper planting methods and care of the plantation, proper methods of picking, grading and preparing the fruit for market and organized methods of marketing the fruit were considered a necessary part of the work.

While no accurate figures are at hand by which a definite statement can be made showing the amount of small fruit products that are imported, a careful study indicates that certainly 95% of the small fruit products sold in Virginia are grown and preserved in other States. Much of this comes from such distant points as California, Oregon and Washington. Consequently, the consumer is obliged to not only pay a profitable price to the producer, but also has to shoulder the burden of long transportation costs and the profits of several middle men.

The ultimate hope in this connection is that Virginia will produce all the small fruits and small fruit products that her people will consume. This necessitates a larger planting of small fruits on the general farm. It needs the growing of small fruits on a commercial scale in some sections of the State and the establishment of commercial preserving concerns. Tomato canneries with some slight changes would serve this purpose and at a season when they are not needed in the tomato canning industry. This would lower the overhead charge against the tomato industry.

Not only has small fruit production for home and local use been advocated, but also the opportunity for commercial production to supply demand in markets outside the State has been considered. A large amount of small fruits, particularly strawberries, blackberries and raspberries, would find a ready market in the coal fields of West Virginia and the larger cities to the north and south.

Work has been organized within the College between departments concerned with horticultural production and with both the men's and women's work in the Extension Division. In addition, small plantings have been located at a few Agricultural High Schools.

In the conduct of the work, it is proposed to establish home and commercial plantings with the assistance of the County Agents. The home demonstration work offers an excellent medium through which girls' club work in small fruits may be established. This seems to be one of the most promising means of spreading the work at this time, particularly for home use. The work done in connection with the Agricultural High Schools is designed to serve as a demonstration for the community. The interest of the High School students should tend to encourage local plantings under good management.

24 conferences have been held during the year between the workers of the College to determine plans and get them into operation. 61 conferences have been held at various points in the State. 10 agents' meetings have been held. 8 meetings have been held with committees at local points in the State to consider this work. No local organizations have been formed, but prospects are very bright for the formation of one or more of these during the coming year.

200 letters of information; 5 circular letters; 4 press articles and 2 general articles and 1 bulletin have been written. 1 fair exhibit and 1 poster have been prepared and used. The results of this work are not particularly striking as yet since a great deal of preliminary work had to be done to establish the industry. It should be understood that small fruit growing is an almost totally neglected phase of horticulture in Virginia with the exception of a comparatively small amount of strawberry growing. However, in spite of this, there is an excellent prospect that at least one organization will be formed during the coming year. 5 farmers' meetings with a total attendance of 4,189 were held; 5 plantings were established.

Special assistance was given on 24 farms; 30 acres of planting are included in the above. 3 agents have taken up this work in some detail and 12 farmers have developed considerable ability in this line of work. 27 counties and 20 agents have been visited.

It might be mentioned that the Farm Bureau of James City County is taking a very active interest in promoting the production of strawberries in one section of that county.

## Minor Lines.

### Rodent Control.

From time to time the fruit growers of Virginia have suffered severe loss from girdling of fruit trees by rodents. The injury has largely been caused by pine mice, meadow mice and rabbits. A certain amount of injury takes place each year with heavy losses periodically. It has been the practice of the horticulturists to give demonstrations in mice poisoning and to give information concerning protection of trees from rabbits.

During the past year 7 meetings have been held at the College to discuss plans of work. 36 conferences have been held at various points in the State - largely with individual fruit growers.

2 letters of information; 2 press articles and 1 bulletin: "Rodent Control in the Orchard and Treatment of Injured Trees", have been written. This bulletin was not disseminated since it did not come from press until late spring. It will be sent out to the fruit growers early this coming winter.

During the past year 5 demonstrations with an attendance of 535 people were held; 5 demonstration visits were made; 5 counties were visited; 350 orchards were reached in one way or another, and 4 agents were visited.

### Orchard Fertilization.

A few years ago the need of fertilizers, particularly nitrogenous fertilizers, warranted some careful work in this connection. The chances are that the past year

more nitrogenous fertilizer was used in the orchards than was justified. It is a problem that requires considerable attention from year to year, yet the practice and theory of orchard fertilization is so well established that the work should not be conducted as a major line. Such information as comes to light from time to time can be readily passed on to the growers through the ordinary channels. 176 conferences have been held in the State the past year regarding fertilizer work. These conferences were held largely with individual fruit growers at times when the orchards were visited or when one of the extension men happened to meet with and discuss orchard problems with the fruit grower. 1 circular letter was written; 10 farmers' meetings with an attendance of 500 were held; 50 demonstration visits were made, and 15 counties were visited.

Establishing Orchards.

It has been the policy of the Horticultural Department to assist in new development as well as assisting the established industry. This relates both to commercial and to home orcharding. The latter has been of more concern of late years than the former, since the development among the commercial interests largely takes care of itself.

The home orchard in many parts of the State has largely disappeared from the farm. It is the policy of the Horticultural Department to create a greater interest in the home orchard and to give assistance in caring for it. With this in mind, instruction is given in regard to the orchard site, selection of varieties suitable for home use, the proper care of the orchard, etc., as opportunity permits. This work has not been carried on as a major line but every effort is used to bring this phase of work before the farmers. This seemed especially desirable since practically all sections of Virginia are well adapted to home fruit growing. The home orchard is gradually increasing again in Virginia, but the progress is slow due to the need of purchasing spraying equipment and the trouble and labor involved in caring for the fruit and trees properly.

33 conferences have been held in regard to home orchard or commercial orchard plantings. Considerable correspondence has been had with people from outside the State in regard to commercial fruit growing. Advice has been given to a good many people in regard to proper development of the home orchard. Many bulletins regarding variety selection and establishment of the orchard have been sent out. 26 demonstration visits have been made in connection with the management of the home orchard and 26 counties have been visited.

Home Gardening.

Comparatively little work was done in connection with home gardening since the home demonstration agents have the work well in hand and the specialists gave much attention to it two or three years ago. Certain written directions regarding home gardening work has been given to the demonstration agents and to individuals. A small amount of work has been done in connection with controlling pests in the garden and the storage of vegetables has been considered to some extent. A small amount of information regarding the handling of club gardens and judging of club garden products has been done.

Landscape Gardening.

Landscape gardening has not received the attention from the Horticultural Department that it merits. The landscape about the old homes of Virginia is a beautiful thing to observe. The landscape about the average modern farm building is usually largely lacking in landscape treatment. There seems to be a general lack of thought or understanding of the value of selecting a home site where the natural surroundings will, in a large measure, make the frame for good landscape work. Many times the fine native trees are sacrificed when the building operations take place.

There is a considerable interest in this line of work in Virginia, but the Department is without adequate means of serving this interest. The personnel of

the Department is fully employed with major lines of work and the only help that can be given in connection with landscape is incidental to other lines of work.

The members of the Department feel that landscape should be given more attention in this State; they feel that there is a need for this work. It might well be joined up with the Agricultural Engineering Department and possibly at this time cooperative work might be done with those in charge of landscape work in the Federal Department. The ultimate hope is that a man can be employed who will give at least one-half time to actual field work in landscape gardening with the farmers of Virginia.

This year 6 conferences have been held at the College in regard to landscape work; 18 have been held at various points throughout the State. 2 letters of information; 1 circular letter and 1 press article have been written. 9 demonstration visits have been made; 11 counties have been visited and special work with 1 agent has been undertaken.

Information and Inspection Trips.

It is absolutely essential that the field worker keep in close touch with conditions in the field in which he is working. This is especially true since conditions change from time to time and the worker's judgment will be at fault unless he knows well the condition in regard to which he is giving advice.

During the past year the orchards of Virginia have become badly diseased, so badly so that it became necessary to make radical changes in the spray schedule for 1922. In order to prepare an efficient schedule, a study of conditions in the different sections of the State had to be made. The majority of this inspection work was made during the regular course of field work, but some special trips were necessary, perhaps in all 8 or 10 days were spent directly in this type of work. Practically all the fruit growing sections of the State were visited. As many as 400 orchards were inspected by the workers in order that a comprehensive knowledge

of conditions might be had. This type of work meets with the approval of the fruit grower since it leads him to believe that the extension man is keeping himself posted as to actual field conditions. When these trips are made, it is, of course, customary to give the grower the benefit of any information possible regarding orchard management, etc.

Farmers' Schools.

The members of the Department have not arranged any farmers' schools except in connection with pruning. However, the County Agents arrange schools from time to time in their counties and a representative of the Horticultural Department is often asked to give work in these schools. During the past year schools were attended in three counties by a member of this Department. 23 talks were given with an attendance of 2,146 people.

Miscellaneous Work.

In addition to the definite lines of work given above, certain miscellaneous work is done from time to time. An example of this may be mentioned in connection with the tremendous damage done by an ice storm last November in the Valley of Virginia. Thousands of apple trees were completely broken down, some of them having their trunks split in three or four divisions. Within three days after the damage took place, the Horticultural Department had planned two or more tree surgery demonstrations in each of five counties; these were the counties in which the damage was most sever. The results of this work have been beyond our utmost expectations. Thousands of acres of orchards were repaired and in the case of trees not older than twelve years of age practically not a tree was lost. As many as twelve and fifteen bolts, twenty-nine screw eyes and over one hundred feet of wire were used on individual trees. An inspection of the work recently shows that in many cases the trees now seem stronger than before the injury took place.

Bridge grafting demonstrations have been given in two or three instances to repair damage done by rodents.

3 or 4 demonstrations were given in propagation of orchards, consisting of budding young trees to another variety or in topworking older trees.

Some assistance was given in crop reporting during the past year. This was necessary since the work of the Federal Department was given up on account of lack of appropriation. The Department worked in cooperation with the Bureau of Crop Estimates.

A fruit growers' tour was held during the year. It covered the territory from Waynesboro, Virginia, Augusta County, through Rockingham County, Shenandoah County and Frederick County into Berkley County, West Virginia, and ended in the final meeting at the cooperative packing house at Inwood. The attendance varied during the three days of the trip, but an average of about 80 people made the trip. Unquestionably, some very interesting points were brought out during the trip and a more common interest was built up to replace more local interest which will be conducive to a better development of the fruit growing interests of the State.

In addition to the above, members of the Department made two trips to other States where they were invited to talk before large fruit growers' meetings.

Respectfully submitted

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