REPORT

SOUTH MISSISSIPPI BRANCH EXPERIMENT STATION, 1927

By

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Office and Residence South Mississippi Branch Experiment Station

MISSISSIPPI AGRICULTURAL EXPERIMENT STATION
A. & M. COLLEGE, MISSISSIPPI
J. R. RICKS, Director
A Report of Work at the South Mississippi Branch Experiment Station for 1927

Introduction

Weather plays an important part in all agricultural work and has had a marked effect in the work of this station during 1927. While the temperature reached the low mark of 16 degrees here on January 16, it did not reach the frost point a single day between January 17 and February 19. As a consequence of such abnormal conditions fruit trees such as peaches, pears and plums swelled both leaf and fruit buds later to have these seriously injured by succeeding cold spells. While the thermometer following this warm weather did not go below 29 degrees the condition of these buds was such that the fruit was entirely destroyed and a few such trees killed outright. We are gratified to report that neither the low temperature of January 16 nor the warm days following hurt Satsuma oranges in any way and the station and section generally are now harvesting the best crop of Satsumas ever grown here.

While 1927 has been a comparatively dry year, the rainfall was distributed in such a way during the fruiting season of cotton as to seriously affect such yields. Comparing 1927 with the two previous years it might be interesting to state that 1925 was possibly our best cotton year, the total rainfall from March 1 to November 30 being 31.08 inches. For the same time in 1926 this rainfall amounted to 46.95 inches, while for 1927 it was 40.31 inches. On the other hand the distribution of this rainfall in 1927 was such as to make it an excellent year for corn and sweet potatoes.

Cotton and Corn

Last year the results in our experimental work with corn were such that we did not feel they justified a separate report, but this year the yields were so good and the effects of the various treatments so outstanding that we feel a separate report is justified and the details of such work will be published in a separate circular. Experiments here and elsewhere over the section with cotton are much more elaborate than with corn and as usual this work will be published in a separate circular. As a result of our previous work with fertilizers under cotton where the use of potash so completely controlled rust and seemingly exercised considerable control over wilt, a good deal of additional work was started here in 1927 with the use of potash carriers under cotton. This additional work has been done in cooperation with Dr. D. C. Neal, Plant Pathologist of the Main Station, and will be reported in the regular cotton circular. This last named work showed up so encouragingly that the Potash Syndicate has agreed to donate the sum of $1500.00 annually to this station for doing further work with potash under cotton and this will likely be carried out in the same cooperative way with Dr. Neal as collaborator, or adviser.
Work With Oats

Oats are used here in relatively large quantities every year as a winter cover crop. Practically all our cropped land including considerable pasture is plowed or disced each fall and planted to some kind of cover crop, principally oats. Most of these oats are grazed thru the winter and plowed under in the spring, but some are allowed to mature and when possible we try to obtain some experimental data from them. In the winter of 1925-26 these oats did remarkably well and experiments showing the effects of nitrogenous fertilizers under them gave valuable information both as to the quantities used and the time of application.

In the winter just passed some very elaborate experiments were carried out here on some 100 plots of land planted to the Bayliss oat and until rust struck them in the spring these experiments were most promising. However, the abnormal weather above mentioned was evidently responsible for the most severe attacks of rust we have ever seen and these experiments apparently showed very little. The same thing was true with all the oats we saw growing in South Mississippi. A press circular issued early in the year gave the essential details of this experiment which went to show that a complete fertilizer apparently gave best results and that whatever fertilizer is used should be applied early in the year, January applications having been much more effective than February and this last better than March. These results also showed that oats well fertilized and not grazed grew so rank that they completely smothered lespedeza planted with them. Regardless of how well fertilized, if the oats were grazed, this lespedeza has not been injured and the two crops together and continuously grazed have furnished the best pasture ever tried here. Several years before the same land used in this fertilizer test had been grown continuously to oats and lespedeza, the lespedeza reseeding every fall before being disced under and planted again to oats. Careful observations made while the oats were growing during the last season failed to show that the various kinds and amounts of fertilizers used under them had any influence over the control of rust. Figures are available showing yields in all these tests but we feel they are hardly worth publishing.

Winter Cover Crops

The station has continued to grow each fall and winter a number of winter leguminous cover crops. Press circulars have been issued several times during the year calling attention to the progress of this work. Last winter Bur clover, Hairy vetch and Austrian winter peas were successfully grown on rather large areas, but the peas were ruined in the early spring by attacks of plant lice and did not fruit. The Hairy vetch grew to full maturity but made little or no seed. The Burr clover seeded well and the same land has been continued to it after growing summer crops of corn and peas.

During the present fall increased acreages have been planted to these three crops, including two other varieties of vetch, Monantha and Spring, also an additional kind of Bur clover, the California, with small quantities of Crimson clover added. All these crops were planted here in October in time to get them up before the severe drought which came later
had dissipated the soil moisture. At this time, November 15, these crops with the exception of Crimson clover, are covering a number of acres with a carpet of green and are attracting the attention of our visitors. Some thirty acres, including much pasture land, have been planted to Bur clover and a number of acres to Austrian winter peas and Spring vetch, in addition to the land planted to oats.

Four acres of good land suited to experimental plots have been divided into 72 such plots and devoted to an experiment in 8 replications where we will try to determine the relative soil building powers of five of these legumes, plots without them having been left as checks. The crops used include Austrian winter peas, a combination of Hairy and Spring vetch, Monantha vetch, California bur clover and Crimson clover. This work is being done on limed and unlimed land and this land will be planted to cotton in April as a measure of the effects of the various treatments.

**Lespedeza**

Lespedeza is used here both as a pasture and hay crop. In wet years it makes a wonderful yield of hay, but in hot dry summers, especially when grown on hill land, it frequently is badly damaged, making very little hay. As a pasture crop it is not subject to such severe injury because the plants never attain a size that they cannot withstand such droughts. We mentioned under oats that when lespedeza was grown as a companion crop with oats and these well fertilized for heavy yields of hay or grain, the oats shaded the young lespedeza to the point of completely destroying the stands. This has never happened here where the oats were used as pasture and the size kept down.

This year we grew three new varieties of lespedeza from seed furnished by Dr. Suttle of the A. & M. College and by the Coastal Plain Experiment Station at McNeil, but stands obtained were poor. The same land will be continued to the same varieties another year with the hope that seed matured on it will give better stands. Lespedeza is also being grown here in rotation experiments and furnishes a good percentage of our pasturage along with bermuda and carpet grasses.

This fall eight acres of such pasture was plowed after the lespedeza had seeded and has been planted to California bur clover, properly inoculated and fertilized, with the hope of materially increasing the grazing period of the same and with crops that should reseed themselves every year. Interest in pastures throughout the section is greater now than ever before in the history of this station.

**Station Visitors**

Numerous visitors have come here throughout the year, including farmers led by County Agents and leading business men; school boys led by their teachers, largely Smith-Hughes instructors; fertilizer manufacturers and salesmen; scientists interested in special features of our work; and home seekers brought here by land owners or their agents who desire to show them what is being done with lands similar to the unused cut-over lands of South Mississippi. A day seldom passes now, regardless of the season,
that we fail to have one or more parties of visitors interested in some feature of our work. In particular we might mention a one day school for fertilizer manufacturers and salesmen held here last summer which brought together some sixty such men who spent the day listening to discussions about fertilizers and visiting the numerous plots on the station where different fertilizers had been used for various periods of time.

Publications

There were issued early in the year the usual annual report and the circular giving results of numerous experiments here and elsewhere over the section with cotton. Besides these there were issued from time to time throughout the year the following press circulars giving short accounts of timely work going on at this station and reported in popular style where it might easily be used by the papers: No. 252, Landscaping in South Mississippi; No. 254, Ranches Turned Into Cotton Fields; No. 263, Late Winter and Early Spring Weather Records for 22 Years; No. 264, Dismal Outlook for Cotton in 1927; No. 279, Cold Injury to Fruit Trees; No. 280, Rust in Oats; No. 286, Results with Leguminous Cover Crops, 1926-27; No. 288, Save the Peach Orchards by Cultivation and Fertilizers; No. 289, The Entomologist—An Appreciation; No. 297, Notes on Oats and Lespedeza; No. 291, Irish Potato Source of Seed Test; No. 296, An Invitation to Visit the South Mississippi Experiment Station; No. 298, The Boll Weevil Situation in South Mississippi; No. 302, The Effects of Potash on the Control of Rust in Cotton; No. 303, Potassic Fertilizers for Cotton in Mississippi; No. 314, Cooperative Work with Fertilizers under Cotton in Lamar County; No. 315, Further Observations on Potassic Fertilizers for Cotton; No. 317, Experiment Station Activities; No. 318, Old Fertilizer Test Plats at Poplarville; No. 319, Cooperative Fertilizer Work in Pike County; No. 320, Varieties of Cotton Tested in Pike County; No. 322, Satsuma Orange Development. Some five or six other manuscripts for press circulars have been prepared and submitted, but as yet have not been printed and given numbers.

Such press circulars have been widely copied by South Mississippi papers and have been used by County Agents as a basis for recommendations in their work. While all of these circulars have not given strictly experimental data, they have largely been based on work done here in the past or being done for the future and should serve a useful purpose.

Cooperative Work with State Plant Board

The State Plant Board has continued to keep a representative at Poplarville whose office is on the station. Mr. J. E. Lee is the present representative and has assisted us in many ways in the control of insect pests and plant diseases. The growing of sweet potato plants for use in the weevil infested areas of South Mississippi has been continued on land furnished by this station. In addition to this Mr. H. H. Wedgworth of the Plant Board has cooperated with the horticulturist here in doing work with certified Irish potato seed and with the assistant director in testing several organic mercury compounds in the control of root and ear rots in corn. In other ways too numerous to mention these gentlemen have aided us in the work of the station.
Tests with Organic Mercury Compounds

As above mentioned we cooperated with Mr. H. H. Wedgworth, Associate Plant Pathologist of the State Plant Board, in comparing the effects of two organic mercury compounds on the control of root and ear rots in corn and one seed stimulant. This work was done on comparatively new land where evidently these rots have never developed for in other fields here the root rot had given considerable trouble in the past. Mr. Wedgworth treated Mosby seed corn with these compounds and sent such treated seed with some untreated to be planted here. This was done in six replications of each and observations made throughout the growing period to see the effects. No differences that the eye could detect ever developed and the final weights of corn failed to show that they exerted any influence. The untreated plats yielded at the rate of 53.5 bushels per acre; seed treated with Semesan Bel, 53.0 bushels; with Bayer Dust, 54.6; and with Stimuline, (a seed stimulant) 53.2 bushels. These differences were so small that they might well be attributed to experimental error. Results of work with Irish potato seed will be given by Mr. Anderson, horticulturist here, in another part of this report.

Work with Varieties of Cowpeas

The question of a variety of cowpeas that may be depended on to fruit well here is an important one. Practically all varieties, not seriously subject to nematodes, grow well here and make heavy yields of forage, but few such varieties fruit well. In work previously done here a local variety commonly known as the 6-weeks pea has fruited remarkably well and for
several years this station has grown and distributed these peas in a small way. Several bushels of such peas grown here early this year were furnished the station at McNeill and are being used now in feeding tests with hogs to determine whether or not such hogs fed on peas and corn will fatten out hard. Our station is cooperating with the one at McNeill in fattening some of these hogs grazed on peas, soy beans and corn.

This 6-weeks pea has been planted at intervals here this year extending from March to September. Reasonably early plantings of them have all fruited well, plantings in mid-summer have not fruited so well, while similar plantings made very late have also fruited well, the differences apparently being due to the character of the weather at or near the fruiting period. Wet weather at this time seems to interfere seriously with such fruiting.

These 6-weeks peas were planted here this year along with five or six common varieties after a crop of oats. All varieties made good growths of vine, but none except the 6-weeks made any fruit whatever, and these fruited only fairly well due to showery weather at the fruiting period. We have had many letters from parties widely apart to whom small quantities of these peas had been furnished, saying they had done remarkably well, outyielding any variety they had ever tried.

**Sorghum Variety Tests**

On May 25 seed of 17 varieties of grain sorghums, sent here by the Delta Experiment Station, were planted on small plots. The land was fertilized in the same way as that on which corn varieties were grown on adjoining plots.

As the seed of these varieties ripened the heads were cut and weighed, giving yields as follows calculated in pounds per acre: Red Amber, 1020; Black Hull Kaffir, 600; Pink Kaffir, 420; Double Dwarf Milo, 840; Premo Dwarf White Milo, 780; Double Dwarf Milo, Extra Fancy, 892; Hegari, 735; Dorso, Bred Up, 1207; Sagrain, 576, 3780; Sagrain, 303-437, 3937; Sagrain No. 309, 3255; Schrock Kaffir, 2520; Spure Feterita, 708.

Included among these sorghums were Honey and Gooseneck, each of which made heavy growths of stalks and much grain, but ripening seed much later than the ones above mentioned, caused hundreds of birds to concentrate on them, thus destroying the grain to the point where we never considered it advisable to cut and weigh. Birds also gathered much of the grain from the other kinds, but made no such inroads on it because their efforts were scattered. Two varieties of millet, German and White Wonder, failed to germinate tho planted the second time.

Of the ones tested and weighed, the Sagrains were by far the best producers of grain, Schrock Kaffir coming next. The Sagrain and Schrock Kaffir had much the same habits of growth, but seemingly the Sagrains were much sounder and less badly affected by insect or fungus troubles that attacked the heads.

While the weights of the Sagrains were no larger than those of corn growing nearby, it was planted almost two months later at a time when corn here seldom makes the best yields. Too, 1927 has been an especially good year for corn while the sorghums will withstand adverse weather...
conditions, especially droughts, much better than will corn. Seasons here
when crops of this kind are ready to harvest are usually so damp that
in the past we have found it next to impossible to save dry forage when
so coarse as are the sorghums, whether they are saved as hay or in shocks
as corn is cured in other sections. Therefore we simply cut the heads out
of these sorghums and made no effort to save the stalks. With the large
proportion of grain, these Sagrains should make a very rich silage and as
such the entire plant could be utilized here.

**Tobacco**

The same work started with bright leaf tobacco last year was continued
in a smaller way this year. The Southern Railway, thru one of its agri-
cultural agents, Mr. R. O. Lawhon, furnished the expert assistance in the
growing of this tobacco. Only an acre was planted this year and fearing to
plant where the crop had grown the year before, we selected this acre as
near as possible to the curing house, this being the only land available
that would not take that already in use for other experiments.

This acre was on land newly cleared the year before and rather too
full of decaying vegetable matter to give a perfect seed bed. At the time
of setting the young tobacco the weather was very dry and altho water was
used many of the plants died, requiring resetting several times in order
to get a stand. This resulted in our having plants of many ages at the
time of curing, causing a very poor product, the leaves as pulled were
either too old or too young and there was not enough of it to properly
divide and cure each kind.

We have found that this tobacco grows well here and seemingly should
yield as good a product as can be grown any where, but it requires the
attention of well trained workers at all times from the planting of the
seed to the selling of the tobacco. We had no such well trained labor here
and had to depend in the main on school children to do a large part of
the work. Insects were especially bad, especially the bud worms, which
did their work so under cover that the damage was not seen until too late,
a pin hole in the small leaf growing to the size of a dollar in the matured
plant. This tobacco was regularly poisoned against such insects, but in
the end considerable damage was done by them, especially the bud worms.

With the same class of labor that actually produce tobacco in other
sections we feel that it might be grown equally well here, but from the
standpoint of profit we must confess it has been at a loss, as grown by us.
When common labor must be paid 20 cents an hour and grumble when told
to string tobacco rather than chop cotton, even the closest supervision is
not sufficient to make them produce a high grade product. It is a crop
that requires infinite detail by ones who are personally interested in the
result and does not lend itself to the use of labor saving devices that must
be used when labor is as high as it is here in a country of saw mills.

**Improved Varieties of Sugar Cane**

Three years ago, Dr. D. C. Neal of the main station, sent us several
varieties of mosaic resistant sugar canes which were grown here and dis-
tributed generally to the farmers of South Mississippi as they manifested
an interest in it and would come and get such cane. The first year they refused to come for it altho it was given free of charge, but as mosaic increased in the common canes, their interest increased until a year ago we could not supply the demand. With Dr. Neal, we finally interested Dr. P. A. Yoder of the division of sugar plant investigations, U. S. Department of Agriculture, who early this year supplied us very small quantities of more than forty varieties of new canes and agreed to put on a cooperative experiment at this station in the growing of such canes. These varieties were planted here early in the year and Dr. Yoder has recently been here and tested out the many kinds grown, planning to increase the better kinds in a planting next year.

This work will be continued until sufficient quantities of the best varieties can be grown for general distribution over the section. Up to this time this cane occupies a very small area but it is possible that much land might finally be needed to carry the work to the point of accomplishing the greatest good. Practically all the cane grown here this year has been banked for increased plantings another year, only a very few of the varieties having been discarded as a result of the elimination test just given them. Mosaic is fast spreading over South Mississippi and the time is close at hand when the common varieties of cane cannot be grown at all, at least this is to be expected judging by the seriousness of the situation in our neighboring state of Louisiana.

Soil Fertility Tests

Mention has been made in previous reports of work here where in four replications of eight plots each we are testing the soil building properties of three common summer legumes grown alone and with corn as compared with a check plot that grows corn only. Cotton is used as the crop with which to follow these and measure such effects. In 1926 cotton following such a system of crops made materially greater yields as a result of following these legumes grown alone or with corn. In 1927 these plots came back to these various crops with results as follows: plot 1 of each series, planted to peas alone, averaged 1225 lbs. of peas per acre; plot 2 of each series planted to soy beans was not harvested, the beans being gathered by hogs; plot 3 of each series, planted to velvet beans, was not harvested except by hogs; plot 4 of each series, planted to corn and cowpeas, yielded 6.1 bushels of peas and 33.7 bushels of corn per acre; plots 5 and 8 of each series, planted to corn and soy beans, yielded 27.2 bushels of corn per acre, the beans being harvested by hogs; plot 6 of each series, planted to corn and velvet beans, made 29.4 bushels of corn per acre, the velvet beans being harvested by hogs; plot 7 of each series, planted to corn alone, averaged 40.1 bushels per acre. These results differ considerably from those of 1925 when the same crops were harvested and weighed, in that the soy beans reduced the yields of corn more and the velvet beans considerably less. Just why these differences we are not prepared to say.
Rotation Experiments

For the past six years we have mentioned in all our reports work being done here on 21 plots, repeated four times, and testing 12 cropping systems. This work was continued in 1927 and the outstanding feature of it has again been the fact that where cotton has been continuously planted every year on the same land, diseases, principally wilt, have practically destroyed the stands, especially where the land is predominantly sandy. This was true in 1926 and to an even greater extent has been true in 1927. Several of the plots this year that had grown cotton continuously made less than 100 pounds of seed cotton per acre, whereas plots nearby on which the crops had been rotated made more than 700 pounds, all ridiculously low but certainly in favor of the rotations, for otherwise they had received exactly the same treatments. More will be said about these rotations in the circulars on corn and cotton.

HORTICULTURE

Plant Selection Work

Sweet Potatoes—The work started here several years ago in the selection of Nancy Hall sweet potatoes in an effort to test the benefit of “hill selection” for the improvement of the quality and yield, has been continued this year. For the second year now the results of this selection have been such as would tend to show that there is little to be gained. This year our
strain which has been designated "H Y" (high yield) made 51.9 bushels of number 1 potatoes; while the other one, called "L Y" (low yield) made 74.4 bushels of number 1 potatoes.

Blueberries—Continued observations have been made this year of the several selections in the field of Florida blueberries. There are three fairly definite types evident, and representative plants of these have been selected for future watching. From these selected plants root cuttings and several kinds of stem cuttings were made last winter and sent to the A. & M. College to Prof J. C. C. Price, who is cooperating with this station in some propagating investigations with the blueberry. These cuttings, when rooted, are to be planted at both stations.

Cucumbers—In cooperation with the American Pickle Company at Wiggins, Mississippi, there was started here this year some selection work designed to improve the productivity, earliness, and shape of pickle type cucumbers. Through this company’s field agent, Mr. George Klumb, there was secured from the Heinz interests in Colorado a sample of cucumber seed to use as a starter in the work. Something like a half acre of land was planted to this cucumber this year. Careful observations were made daily when fruiting started, and certain vines selected for their desireableness. Seed from these plants will be planted next year for further selection.

Fertilizer Tests

Tomatoes—The work with fertilizers under tomatoes started here in 1925 has been continued in 1927 on the same plots. Due to the fact that the check plots made little or no yields last year, a basal mixture consisting
of 300 pounds acid phosphate, 160 pounds nitrate of soda, and 50 pounds muriate of potash per acre was applied to all plots uniformly, and the different formulas put on in addition. Marglobe, a wilt resisting variety recently originated, was used and fair yields were obtained. Table No. 1 shows results of this year’s test.

Table No. 1—Tomato Fertilizer Record, 1927.

<table>
<thead>
<tr>
<th>Pounds Material applied per acre</th>
<th>Crates No. 1 Tomatoes per acre</th>
<th>Dollars per acre</th>
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<td>Acid Nit. of Mur. of Phos. Soda Potash</td>
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<tr>
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<td>600 320 200 S-4-8</td>
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<td></td>
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<td>900 480 150 S-4-4</td>
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<tr>
<td></td>
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<td>1200 640 200 S-4-4</td>
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Sweet Potatoes—The test of fertilizers under sweet potatoes started here in 1925 has also been continued on the same land which is located in the “Moody Field”. The Porto Rico variety was used again this year, plants

Table No. 2—Sweet Potato Fertilizer Record, 1927

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having been set in the field on May 23. Seasons have been very favorable this year for the production of sweet potatoes in this section and fine yields were harvested from our test plots on October 31. The work is done on seventeen plots in each of three series and the results shown in Table No. 2 represent the average of all three series.

**Pecans**—The work with fertilizers under bearing pecan trees which was started in 1925, and in which Governor Bilbo has been cooperating by furnishing the orchard for the work, has been continued as heretofore. In this experiment amounts of an 8-5-3 fertilizer per tree have been varied from 25 pounds to 50 pounds, and the time of application has been varied so that in some cases the plots receive 50 pounds per tree in March and in others they receive per tree 25 pounds in March and 25 pounds in June. No results can be reported on this work as no crop has been secured from the trees since the experiment was started.

**Peaches**—Realizing the need for some additional data on the fertilization of peach trees in this section, this station started an experiment in 1927 designed to test the effects of a dozen different treatments with fertilizers applied to this crop. A block of land on the station grounds proper, consisting of approximately six acres, was set in February to June bud trees of the Belle of Georgia variety. The orchard is so laid out as to make sixteen plots of nine trees each in two series separated by an untreated row, and each two fertilized plots are separated by an untreated row.

The amount of material per tree is being varied as well as the composition, and the plan calls for an increase each year of one pound per tree of each treatment, starting out this year with three pounds per tree as a standard first-year application.

In addition to the fertilizer treatments this orchard is being intercropped with legumes in both winter and summer. Austrian Winter peas were grown last winter and plowed under in the spring. Laredo soybeans were planted immediately following these peas and when mature this fall these were cut and cured for hay, while the stubble was disked under and the land planted again to Austrian Winter peas.

**Strawberries**—An experiment was started in 1927 testing a dozen different treatments with fertilizers under strawberries. Approximately one acre of land in the “K. Smith Field” was divided into sixty-six three-row plots, fifty feet long, by ten and one-half feet wide. Fertilizers were applied and land prepared on February 26 and plants of Klondyke variety were set out on March 10. This was too late of course for a crop to be made this year, but fine plants have been produced and the plats should make good crops in 1928.

**Variety Tests**

**Fruits**—Continued observations are being made of the many varieties of various fruits under test here in an effort to determine the best adapted ones for both home orchard use and for commercial plantings. Due to very unfavorable weather conditions during the winter no fruit was made by any of the peach or plum varieties this year. A freeze came in the latter part of February immediately following about one month of unprecedented warm weather for winters here, which had caused the trees to either swell their
buds or even in some cases open blossoms. This cold injured them to the extent of destroying the crop for this year and weakening the trees very severely. With diligent attention given to fertilizers and cultivation, however, it is expected that these trees will resume their former vigor and bear normal crops in 1928.

The additional ten varieties of peaches planted in the winter of 1925-26 have made wonderfully fine growth during the present year and should produce a crop of fruit next year. There was planted this year another addition to the peach varieties including twelve varieties not commonly grown in this section. Some of these have been showing themselves to be promising in other Coastal Plains plantings, and it is hoped they will furnish additional satisfactory trees for the home orchardist in this section.

The several varieties of apples are continuing to look rather questionable, although some have not yet been injured by blight, and a few bore a small crop of fruit this year. These include Day, Shockley, Red June, Winesap, Delicious, Red Astrachan, Hackworth, Moore, Sorsby, and Kinard's Choice. Both Florence and Hyslop Crab made a few fruits this year. Three varieties of apples were added to the test this year.

The several varieties of Japanese persimmons again made favorable crops of fruit this year. The twelve varieties of pecans have made good growths this year but only an occasional nut was borne.

The dozen varieties of figs in the test made as good crops this year as we have been getting in spite of the fact that growth had started when the freeze above mentioned came. It may be recalled from previous reports from this station that figs do not seem to do as well under orchard conditions as they do under door-yard conditions. Trees grown under clean cultural methods make enormous growths and usually set considerable crops of fruit, but this fruit invariably in the case of most varieties, drops off before it ripens. This is especially noticeable with the Celeste, the most popular one used in this section for home plantings. When grown under permanent sod culture, the Celeste is a failure. Green Ischia, Black Ischia, and Brunswick, however, have made fair crops in some years under clean culture. Last winter a block of Celeste and Lemon varieties was mulched heavily with oat straw and no cultivation was given this year. The object of this is to determine whether or not one can obtain conditions with mulches which are favorable to the fruiting of these varieties. No observations are ready to be reported on this work at this time.

Besides the apples and peaches above mentioned as being added to the varieties in the test, there were several varieties of other kinds of tree fruits introduced and planted the past winter. Some were new introductions into this country by the U. S. Department of Agriculture, and others simply secured through nurserymen. They include two varieties of pears, two of Japanese cherries, four of Chinese jujubes, three of plums, one of Chinese Tung Oil, and one of Chinese evergreen chinquapin. Some of these are quite rare in this section and will therefore be watched with unusual interest.

Of the planting of some thirty-five varieties of bunch grapes in 1920 there are now only ten varieties growing in the test vineyards. Of this lot there are not more than six which are promising enough to be kept longer in the plats for observation. These include Delaware, Ellen Scott, Muench,
Herbemont, Lenoir, and Delicious. Replacing these unfavorable ones have been planted additional varieties including last year Winchell and Armalaga, and this year, Volney, Herbert, and Lucile. Others will be added from time to time.

The four varieties of muscadine grapes, James, Flowers, Thomas, and Seuppernong, made excellent crops again this year and continued to show themselves to be well adapted to the section. This group of grapes, while not completely "fool-proof" as regards management for success, is quite easy to handle. They require little spraying, but should be trained on a trellis, pruned annually, fertilized in the spring liberally, and cultivated as the regular farm crops. Using these methods there have been secured here yields as high as eighty-five pounds per vine.

No. 5—Showing method of training and pruning Thomas Muscadines

Observations have been continued on the experiment of Vinifera grapes grafted on American varieties as stocks, which were started here in 1923. Although there is little possibility of their going through another season alive, there are now two vines of Muscat-Hamburg on Ives and two of Chaselas-Fontainbleau on Ives living. These made very weak growths the present year and only a few small clusters of undeveloped fruit. Further cooperation with the Bureau of Plant Industry at Washington is being solicited for continued studies of the problems of growing the Vinifera or European grapes here.

Satsuma Oranges—Observations are being continued in the planting of Satsuma oranges made here in 1920. It will be recalled from previous reports that these trees were severely injured in the winter of 1923-24 by a freeze when the temperature went as low as 12 degrees. This cold injury was soon overcome because the trees had been protected near the ground
by embankments and the root system being strong forced out a vigorous growth the first season. The trees are now in fine shape and exhibit very little evidence of having ever been killed back by a freeze. Much has been learned about the proper way to handle Satsuma oranges for hardiness and these trees are bearing fine crops of fruit, annually. In spite of the occurrence last winter of a drop in temperature as low as 16 degrees F., our trees this year were able to hold and ripen crops of from one hundred up to four hundred oranges per tree. This fruit apparently has great possibilities in South Mississippi and it is only to be regretted that this station has not been able financially to conduct elaborate experiments with the growing of it commercially, especially with reference to fertilizers, cultural methods, and pest control.

Other Citrus Fruits—Normal crops have been made this year by the Nagami and Maruma varieties of Kumquat, and Dancy Tangerine. Lue Gim Gong round orange, of which we have one tree, made sixty fruits. The Parson Brown lost all leaves and at least 50% of the wood during the freeze of last winter when the temperature went as low as 16 degrees F. This was also the case with the Homosasa round orange, Foster grapefruit, Thornton Tangelo, and Pineapple round orange. The one tree of Meyer lemon in the orchard was completely defoliated last winter and at least 75% of the wood was killed. Elkins lemon suffered less injury and bore this year its first crop of 29 fruits. Duncan grapefruit exhibits reasonable hardiness here and bore this year 17 fruits of good size.

Vegetables—Approximately one acre of land has been set aside for home garden work, and an effort is being made to keep some sort of vegetable growing on this land all the year. At the same time, different varieties or strains of the same varieties are secured and planted in the garden and observations are being made of their several behaviors. As any conclusions are reached as to the relative values of varieties and kinds of vegetables for the home garden in the section, reports will be made of the same.

Watermelons—Preliminary work with varieties of watermelons was started here in 1926 when seven varieties were planted. The same varieties were planted again in 1927 except that Kleckley Sweet and Florabama were substituted for Ice Cream and Stone Mountain of the 1926 list. The land for this work this year was laid out so that the hills would be twelve feet apart each way. Ten hills were planted of each variety, and these were thinned to one plant in each hill. Each variety received the same amount and kind of fertilizer and the same cultivation, the plowing being done across the variety rows. Table No. 3 gives results of the observations for this year.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date first Picked</th>
<th>Date last Picked</th>
<th>Ave. No. per vine</th>
<th>Ave. Wght. each melon</th>
<th>Wght. of largest melon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kleckley Sweet</td>
<td>July 5</td>
<td>July 26</td>
<td>2.2</td>
<td>23.4</td>
<td>34.0</td>
</tr>
<tr>
<td>New Perfection</td>
<td>July 2</td>
<td>July 16</td>
<td>.7</td>
<td>29.4</td>
<td>39.0</td>
</tr>
<tr>
<td>New Schochler</td>
<td>July 8</td>
<td>July 26</td>
<td>1.4</td>
<td>35.6</td>
<td>44.0</td>
</tr>
<tr>
<td>Florabama</td>
<td>July 5</td>
<td>July 27</td>
<td>1.1</td>
<td>35.4</td>
<td>46.0</td>
</tr>
<tr>
<td>Wonder</td>
<td>June 29</td>
<td>July 16</td>
<td>1.5</td>
<td>28.2</td>
<td>46.0</td>
</tr>
<tr>
<td>Tom Watson</td>
<td>July 2</td>
<td>July 13</td>
<td>.6</td>
<td>31.8</td>
<td>42.0</td>
</tr>
<tr>
<td>Irish Grey</td>
<td>July 8</td>
<td>July 16</td>
<td>1.1</td>
<td>26.1</td>
<td>34.0</td>
</tr>
</tbody>
</table>
Seed Strains Experiments

The work started here in 1926 with various strains of certified and uncertified seed Irish potatoes has been continued in 1927, but with the cooperation of Mr. H. H. Wedgworth, Associate Plant Pathologist of the State Plant Board, the test has been carried out in a much more elaborate way. This work is being reported in Circular (75), published jointly by Mr. Wedgworth's department, the Raymond Branch Station and this station.

Berry Work—The Van Fleet raspberry planted three years ago has continued to grow luxuriantly and bears annually small crops of fruit. This variety may have value as a home garden berry. The Thornless dewberry seems well adapted to our conditions. The Young dewberry, a hybrid between the Phenomenal blackberry and the Austin-Mayes dewberry originating about 1905 in Louisiana, has been added to the list of berry plants this year. This berry has been planted in several locations in the Coastal Plains with fair success. The several varieties of Rubus Species introduced from foreign countries and planted here several years ago have shown themselves entirely unsatisfactory, and are being eliminated from the experiments.

Nematode Control Experiments—Studies are being continued in the work with culture as related to the inhabitation of the roots of peach trees by nematodes. The entire block of trees devoted to this work is pretty well infested now, and careful observations are being made of the several plots. No crop of fruit was made on the trees this year, but measurements have been made this fall since all growth had stopped, and the figures obtained which compare the size of trees on various plots are given in Table No. 4.

<table>
<thead>
<tr>
<th>Variety and Culture used</th>
<th>Average Diameter of trunk in inches</th>
<th>Average height in feet</th>
<th>Average Spread of Branches in feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiley, Permanent Sod</td>
<td>8.6</td>
<td>10.0</td>
<td>9.6</td>
</tr>
<tr>
<td>Elberta, Permanent Sod</td>
<td>3.4</td>
<td>7.8</td>
<td>7.7</td>
</tr>
<tr>
<td>Hiley, Clean Culture</td>
<td>7.2</td>
<td>11.8</td>
<td>15.6</td>
</tr>
<tr>
<td>Elberta, Clean Culture</td>
<td>7.2</td>
<td>12.0</td>
<td>14.2</td>
</tr>
</tbody>
</table>

Propagation Experiments—The work with propagation of pear stocks is being continued with the same poor success as heretofore. Again last winter one hundred cuttings each of Pyrus Calleryana No. 1 and No. 2 were put out, and a count today reveals that only four cuttings of No. 1 rooted and one of No. 2 rooted. The trees sent here by Mr. F. C. Reimer of the Southern Oregon station in the beginning of the experiment are still growing with much vigor and hardiness, but there seems to be little chance of the cuttings being easily rooted here.