

TEXAS AGRICULTURAL EXPERIMENT STATIONS

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REPORT OF PROGRESS AT THE
TROUPE SUB-STATION,
SMITH COUNTY, TEXAS

BY
W. H. HOTCHKISS,
SUPERINTENDENT IN CHARGE

POSTOFFICE
COLLEGE STATION, BRAZOS COUNTY, TEXAS



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NOTE.—*The Main Station is located on the grounds of the Agricultural and Mechanical College, in Brazos County. The postoffice address is College Station, Texas. Reports and bulletins are sent free upon application to the Director.*

REPORT OF PROGRESS AT THE TROUPE SUB-STATION.

BY W. S. Hotchkiss, Superintendent in Charge.

LOCATION.

The Troupe Substation is located in the rolling and often hilly fruit belt of East Texas. Originally the land was heavily timbered with pine, oak, and hickory. The soil is gray sand, of very fine texture, varying from three inches to three feet in depth and underlaid with a tight, red clay subsoil.

The average annual rainfall for the last ten years has been about forty-seven inches, the greater part of which falls during the late spring and early summer.

The Station was established in the spring of 1902 under the management of Dr. E. P. Stiles, who continued in charge until his resignation the last of February, 1903, when Mr. E. C. Green was placed temporarily in charge and remained until August 31st of the same year.

The Station grounds consist of 160 acres, donated to the State by the citizens of Troupe, 80 acres of which is in cultivation.

IMPROVEMENTS.

Fencing.—One tract of about 125 acres has been fenced with hog-proof wire, and the balance is protected by a fence of four barb wires.

Buildings.—In 1902-1903 a dwelling of seven rooms, a large office with seven rooms, and a barn were erected, and in 1906 a shed 12x42 feet was built for the protection of the farm tools.

Clearing.—During the last five years over 2000 stumps have been removed and the land put into shape for experimental purposes.

VARIETY TESTS.

Peaches.—In view of the importance of this crop in East Texas, a collection of ninety-four varieties was planted in January, 1903. Forty varieties, however, died during the following summer, and were replaced in January, 1904, and in February, 1906, forty more varieties were added to the list. The old orchard is now five and six years old, and while a few varieties have borne three years, in no one season has a full crop been harvested from the whole orchard. This, to a certain extent, can be accounted for by the fact that many of the varieties that are being tested are not suited to this section, and in some instances the trees never fully recovered from the unusual conditions which prevailed during the year of 1906-1907. Up to this time the following varieties have done best:

	VARIETY.	COLOR.
1.	Sneed, Cling	White.
2.	Victor, Cling	White.
3.	Greensboro, Cling	White.
4.	Gov. Hogg, Cling	White.
5.	Annie Williams, Cling.	Yellow.
6.	Mamie Ross, Semi-Cling.	White.
7.	Carman, Semi-Cling	White.
8.	Family Favorite, Free.	White.
9.	Waddell, Free	White.
10.	Slappy, Free	Yellow.
11.	Hobson, Cling	White.
12.	Hiley, Free	White.
13.	Amelia, Free	White.
14.	Munson Cling, Cling.	Yellow.
15.	Chillow, Cling	Yellow.
16.	Elberta, Free	Yellow.
17.	Cabler's Indian, Cling.	Tinted Flesh.
18.	Stella, Free	White.
19.	Tornado, Free	Yellow.
20.	Philip Horton, Free.	Yellow.

With us, the varieties numbering from 1 to 3 ripen consecutively from May 20th to June 5th; numbers 4 to 7 from June 10th to 20th; numbers 8 to 12 from June 25th to July 2d; numbers 13 to 19 from July 5th to 15th. Philip Horton has ripened for two years about September 15th.

Plums.—Owing to the prevalence of brown rot and curculio, the plum crops, as a rule, have been very light, and the indications are that but few of the fifty varieties planted during the winter of 1903 will succeed in this section. In 1906 a few varieties set fruit for the first time, and in 1907-1908 about thirty varieties fruited. Judging from the three years' results, the following lists of varieties is suggested as being the most promising for market, all in their order of ripening:

Gonzales	Hybrid.
Shiro	Japanese.
Satsuma	Japanese.
America	Hybrid.
Chabot (Bailey)	Japanese.

The America is very productive and is inclined to be small, unless thinned.

To the above list should be added for home use the McCartney, Bartlett and Wickson.

Apricots.—Although the apricots make an enormous growth and bloom full each year, none of the seven varieties planted in January, 1903, has succeeded. Even where a variety set a part of a crop the fruit was nearly all destroyed by the curculio, and in no case has more than a dozen perfect specimens reached maturity.

Apples.—In March, 1903, fifty-five varieties of apples were planted,

and in January, 1904, five more varieties were added to the list. Unfortunately, this orchard was planted upon a cold, damp piece of land, and as a result 50 per cent of the trees are now dead. The unfavorable weather during the past season has been unusually severe on the remaining varieties, and most of them suffered greatly from attacks of blight. The following varieties, however, seem less susceptible to this disease than the others, and, although they have not matured a full crop of fruit, seem promising and are worthy of trial: Astrachan, Texas Red, Gano, Ben Davis, Kinnard, Shockley and Mammoth Black Twig.

Pecans.—Fifteen varieties of pecans were planted in January, 1904, and in February, 1907, nine more varieties were added to the orchard. Most of the varieties have made an excellent growth, and the indications are that they will succeed. The Sweet Meat, Stewart and Schley bloomed last spring, but their failure to set fruit was doubtless due to the heavy rains during the blooming period.

Japanese Persimmons.—Ten varieties were planted in 1904. This fruit seems particularly well adapted to this section, and if the proper varieties are selected, no doubt an annual crop can be expected. The varieties that have made two full crops are Hachiya, Yemon, Hiyakume, Tsuru-no-ko, Tanenashi, Maru and Among.

While the market demand for this fruit is somewhat limited, no garden should be without a few trees.

Strawberries.—A full report on varieties of strawberries was published in Texas Bulletin No. 72. Subsequent tests verify that report.

FERTILIZERS.

Tomatoes.—Texas Bulletin No. 84 gives detailed results of the tomato fertilizer work. Subsequent fertilizer tests verify the conclusions in that report.

Irish Potatoes.—Texas Bulletins Nos. 71 and 101 gives the results of Irish Potato fertilizer tests conducted over a period of four years.

Strawberries.—The conspicuous feature brought out in two years' tests with fertilizers for strawberries is the absence of any benefit from the use of potash. Nitrogen and phosphoric acid seemed equally beneficial, and when combined gave as good results as the nitrogen, phosphoric acid and potash combination. The formula that seems to be most satisfactory is three parts acid phosphate and two parts cottonseed meal.

EXPERIMENTAL PEACH ORCHARD.

Five acres of land was planted to Elberta trees in January, 1907, for the purpose of making spraying, fertilizing, thinning and cultivating tests. This orchard is now only two years old, but the results from the cropping tests seem so conclusive that they can not well be ignored. This test clearly exemplifies the undesirability of growing any crop in the orchard during the early growing season. The average height of the sixteen trees in the clean cultivated plats is eight feet, while that of the same number of trees in the plat that was cropped to tomatoes and followed later by cow-peas is less than five feet. A still greater differ-

ence exists between the clean cultivated plat and the ones upon which corn or cotton was grown. Cow-peas or peanuts planted as late as the middle of June gave better results than any other crop, the average height of the trees in these plats being slightly less than seven feet. (See plates, page 13.)

FORAGE CROPS.

Alfalfa.—For five years various plans have been employed to determine some method by which this valuable crop can successfully be grown upon ordinary upland in East Texas, but our results have been of a negative character. Two spring and four fall sowings have been made, but the former proved to be a total failure and was abandoned in 1904. In 1905-1906 a complete fertilizer test was made in which nitrate of soda, cottonseed meal, acid phosphate, potash, lime and barn lot manure were used singly and in various combinations, but in both years we failed to carry the plants through the first summer. In August, 1907, we applied 42,000 pounds of rotted barn lot manure, 100 pounds of nitrate of soda, 100 pounds of cottonseed meal and 200 pounds of acid phosphate to one acre of land sowed to alfalfa early in October. The first cutting, which amounted to 1900 pounds of cured hay, was made on April 24th of this year, and another cutting, which probably would have been heavier than the first, was practically assured when the heavy rain of May 11th covered nearly one-half of the field with fine sand to a depth of three inches and injured the balance to such an extent that the second cutting yielded but 1400 pounds of cured hay.

The plants now look weak, but we expect them to go through another summer.

The value of alfalfa to the farmer, if it can be successfully grown, will justify any reasonable expenditure to get it established. The work with this crop will be continued and every effort will be made to determine some method by which it can be made to succeed.

Rescue Grass.—When sowed in September, Rescue Grass made an excellent growth during the winter and yielded at the rate of 4200 pounds of cured hay per acre in May.

Clovers.—Red Clover, Mammoth Red, and White Clover were sown in September, 1907, and all have failed entirely.

Timothy and Kentucky Blue Grass.—These grasses were sown in September, 1907. Both made a very weak growth and died during the following summer.

Vetch.—Winter vetch has grown two seasons with very good results. It seems to be promising for grazing and as a winter cover crop. Further trial, however, will be necessary before definite conclusions can be drawn.

Oats.—Oats sown in the fall after cow-peas have given uniformly good results, averaging 2100 pounds (in the bundle) per acre on old, worn-out land. The oats usually are harvested in May, after which cow-peas can be planted and either harvested or turned under. The growing oats protect the soil from the washing rains during the winter months and preserve the plant food furnished by the crop of cow-peas.

We have found that this combination works admirably and should be practiced by farmers on their old, worn fields.

TERRACING.

Owing to the serious soil washes which occur during heavy rains, a system of terraces has been built on the north and west sides of the hill on which the Station buildings stand, in an endeavor to check the rapid flow of water allowing it to soak in where it falls, thus preventing the heavy losses from washing. These terraces have proved to be of great value, as they are capable of taking care of the surplus water and preventing nearly all damage from any ordinary rain.

The wet weather that commenced April 11th and continued until April 24, 1908, followed two weeks later by a rainfall of nearly fourteen inches in fifty-four hours, damaged the fertilizer experiments with sweet potatoes, cantaloupes, watermelons, tomatoes and corn to such an extent that they have been omitted entirely from this report, as the results would necessarily be very doubtful unless verified by the results of other years.

VARIETIES OF GRAPES AT THE TROUPE SUBSTATION.

In the spring of 1902 a collection of 118 varieties of grapes was planted on the gray sand soil at the Troupe Station. This vineyard began bearing in 1904, and, including the year 1908, five crops have been gathered.

It is not always safe to draw conclusions from so few seasons of fruiting, and it should be understood that the results and recommendations are based entirely upon the behavior of the different varieties up to the present time.

It is not the aim to make a detailed description of all the varieties being tested, but merely to give, in as brief way as possible, a list of the varieties on trial, together with a list of varieties that appear to be most promising at this time.

The varieties originally planted are as follows:

Agawam.	Brighton.	Concord.
Albania.	Brilliant.	Cottage.
Amber Queen.	Campbell Early.	Cynthiana.
America.	Captain.	Delaware.
Amethyst.	Carman.	Diamond.
Arbeca.	Catawba.	Diana.
Atoka.	Champanel.	Dracut Amber.
Bacchus.	Campion.	Duchess.
Bailey.	Clinton.	Early Daisy.
Barry.	Cloeta.	Early Ohio.
Beacon.	Colerain.	Early Victor.
Big Extra.	Columbian.	Eaton.

Elvira.	Laussel.	Prentiss.
Empire State.	Lindley.	Presley.
Ericson.	Lucile.	Rommel.
Etta.	Lukfata.	R. W. Munson.
Fern Munson.	Lutie.	Salem.
Gaertner.	McPike.	San Jacinto.
Goethe.	Male Muscadine.	Shala.
Green Mountain.	Mamleaf.	Stark.
Grein's Early.	Mamito.	Success.
Gula.	Marguerite.	Tamala.
Hartford.	Martha.	Telegraph.
Headlight.	Massasoit.	Tonkawa.
Herbemont.	Mercadel.	Triumph.
Herbert.	Mermauta.	Ulster.
Hermann Jaeger.	Merrimack.	Valhalla.
Hopkins.	Mills.	Vergennes.
Iona.	Missouri Riesling.	Victoria.
Isabella.	Mrs. Munson.	Wapanuka.
Ives.	Moore's Early.	Watoca.
Janesville.	Moyer.	Wetumka.
Jefferson.	Muench.	Wilder.
Jessica.	Myletta.	Wine King.
Kiowa.	Neva Munson.	Woodruff Red.
Lady.	Niagara.	Worden.
Lady Washington.	Norton.	Wyoming Red.
La Reine.	Perkins.	Xlnta.
La Salle.	Pocklington.	Yomaga.

In 1904 but little mildew or rot appeared, and, although the vines were still small, 110 varieties bore small crops of almost perfect fruit. In 1905 the crop was nearly ruined by the continued heavy rains during the blooming and ripening periods. In 1906-1907 the crops were badly damaged by mildew and rot, there being but twelve varieties that succeeded in ripening perfect fruit. The crop was light in 1908 on account of the heavy rains during April and May, followed by a prolonged drouth, although a few varieties bore very good crops.

The varieties that seem least susceptible to mildew and rot and that have continued to make good crops, notwithstanding the adverse weather conditions, are: Brilliant, Champion, Concord, Delaware, La Salle, Neva Munson, Niagara, Norton, Rommel, R. W. Munson, San Jacinto, Wyoming Red.

NOTES OF VARIETIES.

Brilliant.—Strong growth; clusters large; berries dark red, covered with purplish bloom, excellent quality; ripens about July 15th.

Champion.—Strong growth; clusters medium size; berries medium size, nearly black, quality fair; early, about June 20th.

Concord.—Strong growth; clusters medium to large; berries medium size; black, fair quality; ripens about July 24th.

Delaware.—Weak growth; clusters medium size; berries small; red, best quality; ripens about July 20th.

La Salle.—Growth strong; clusters medium size; berries large, black, white specks, quality good, drops badly when ripe, good for home use; ripens in September.

Neva Munson.—Strong growth; clusters large; berries medium to small, purple, good quality; ripens about July 25th.

Niagara.—Moderately strong; clusters large; berries medium to large, white, sweet, good flavor; ripens about July 15th.

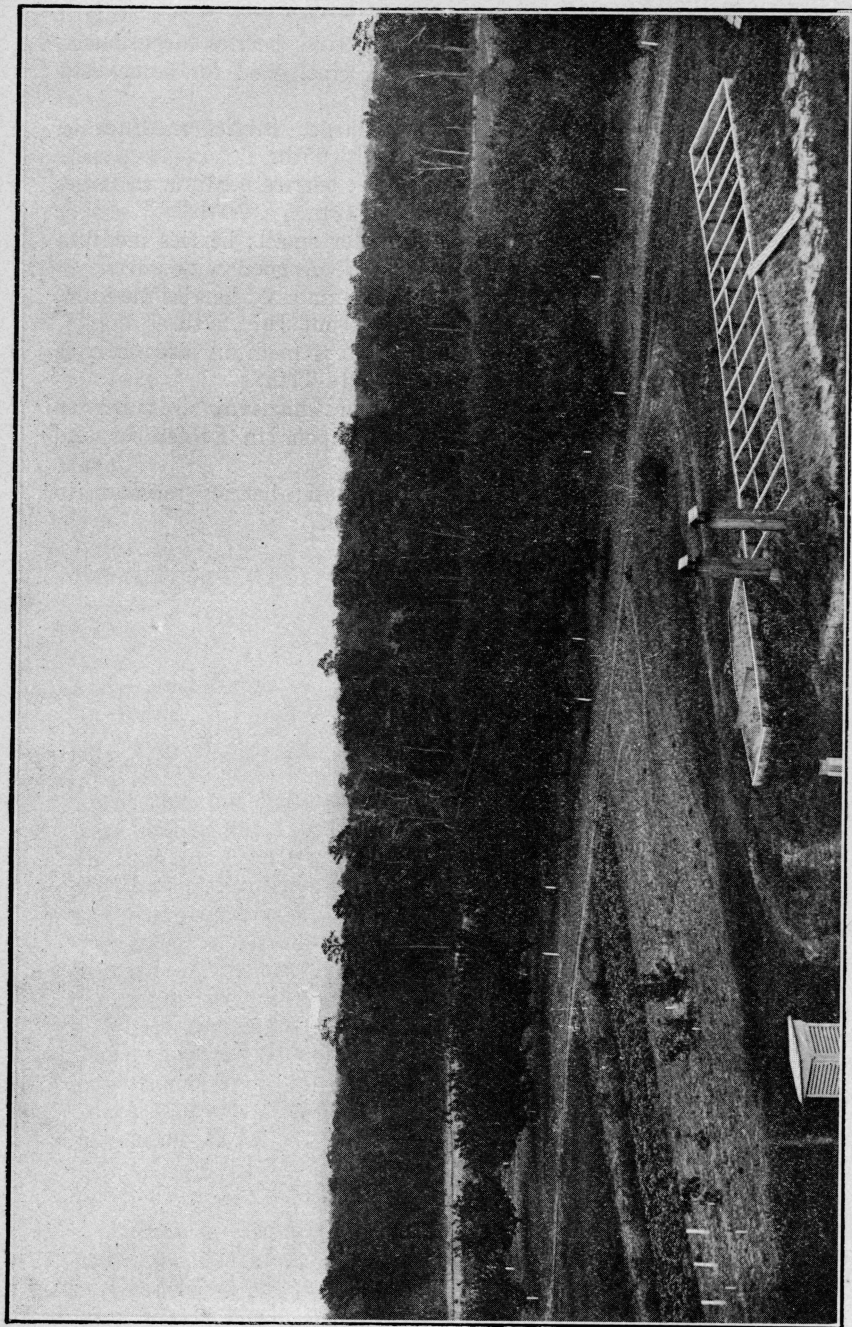
Norton.—Very strong growth; clusters rather small; berries medium to small, black, acid flavor; ripens July 27th. A good wine sort.

Rommel.—Growth rather weak; clusters medium size; berries medium, greenish white, sweet, pleasant flavor; ripens about July 27th.

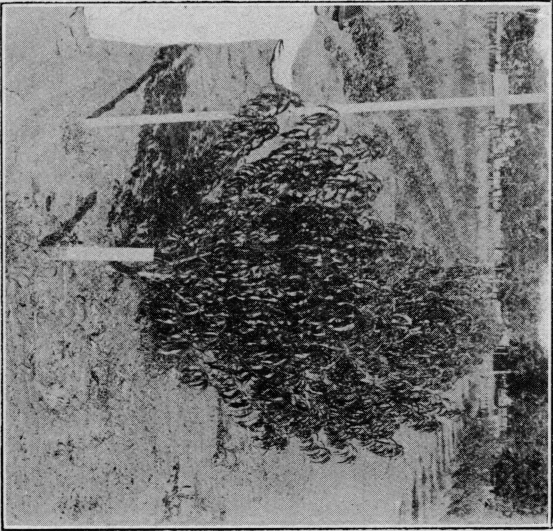
R. W. Munson.—Growth very strong; clusters medium size; berries medium, black, quality good; ripens about July 17th.

San Jacinto.—Very strong growth; clusters medium size; berries large, black, with gray spots, good quality; ripens in September and October.

Wyoming Red.—Weak growth; clusters small; berries medium to small, red, good quality; ripens about July 14th.

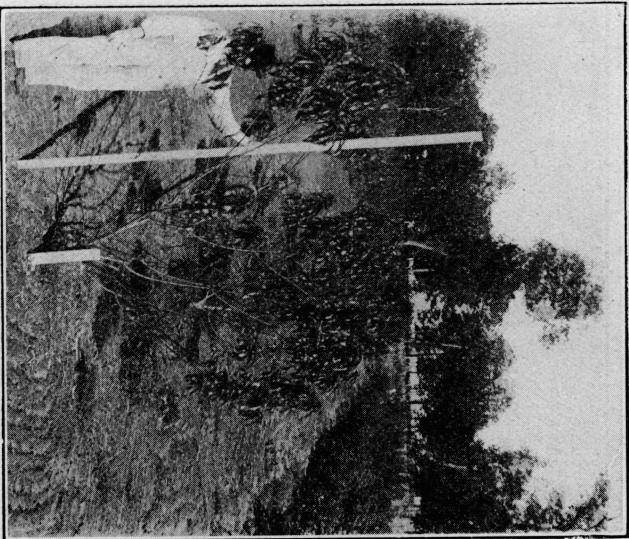


GENERAL VIEW OF VARIETY PEACH ORCHARD—LOOKING N. E. FROM OFFICE.
Photographed April 12, 1908.



PLAT 22

Trees planted January, 1907
 Sowed to oats early in October and turned under as soon as growth started in spring. Clean cultivation during summer.



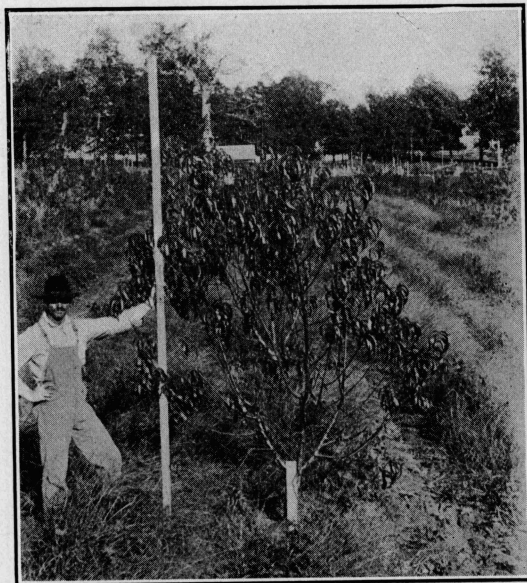
PLAT 15

Trees planted January, 1907
 Clean cultivation



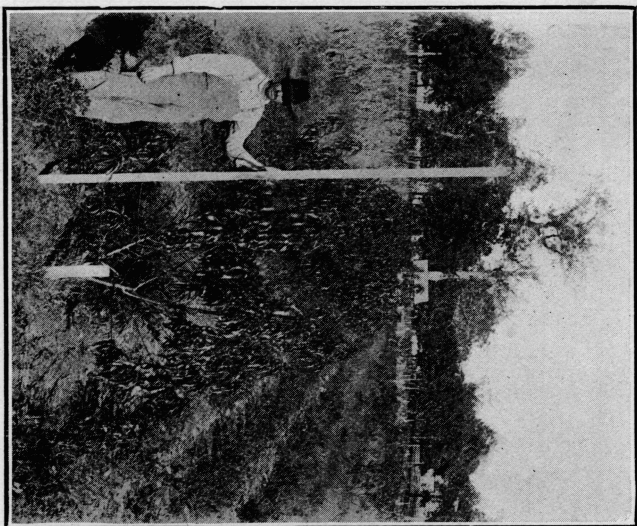
PLAT 23

Trees planted January, 1907 Photographed September 12, 1908
Sowed to hairy vetch early in October and turned under as soon as
growth started in spring. Clean cultivation during summer.



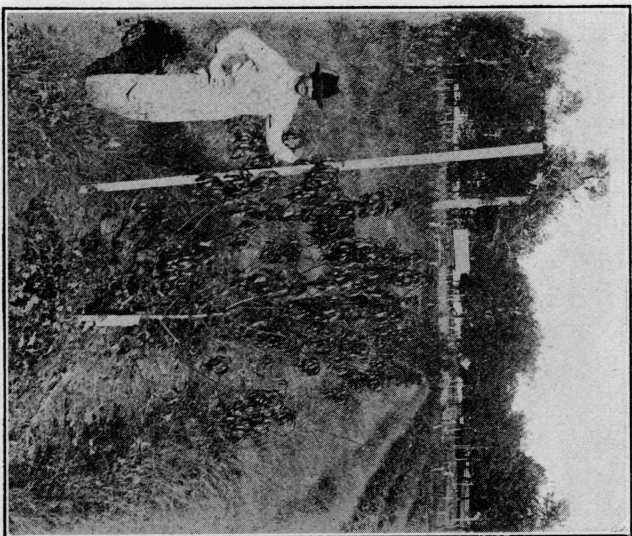
PLAT 19

Trees planted January, 1907 Photographed September 12, 1908
Planted to cowpeas early in June. Crop turned under.



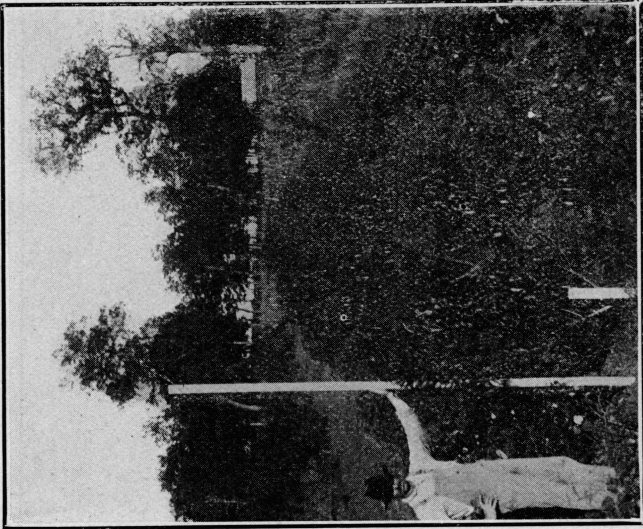
PLAT 18

Trees planted January, 1907
Planted to peanuts, early in June, two years in succession,
Photographed September 12, 1908



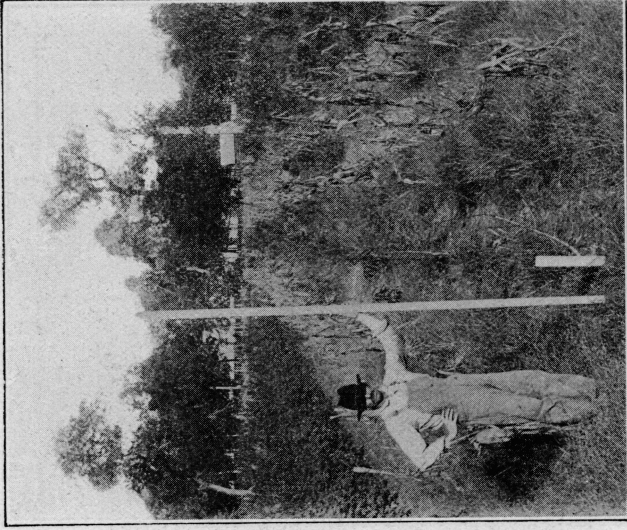
PLAT 20

Trees planted January, 1907
Cowpeas planted early and cut for hay. Second crop turned under,
Photographed September 12, 1908



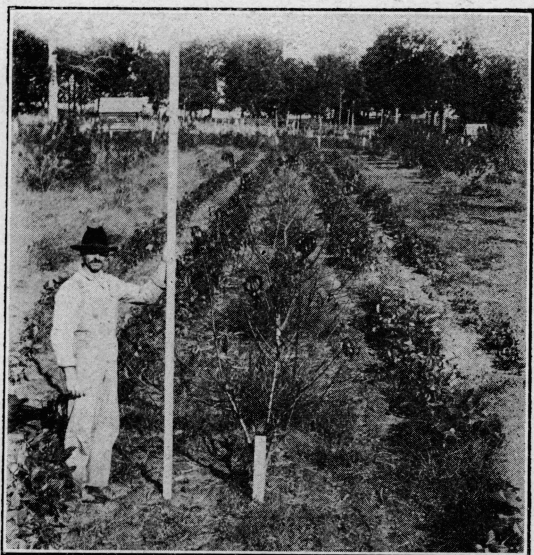
PLAT 16

Trees planted January, 1907
Planted to cotton two years in succession. Cotton fertilized with commercial fertilizer at the rate of 300 lbs. to the acre.



PLAT 17

Trees planted January, 1907
Planted to corn two years in succession. Corn fertilized with commercial fertilizer at the rate of 400 lbs. to the acre.



PLAT 21

Trees planted January, 1907 Photographed September 12, 1908
Planted to tomatoes and followed by cowpeas two years in succession.
Tomatoes heavily fertilized (600 lbs. of commercial fertilizer
to the acre).

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