

THE PEACH INDUSTRY OF GEORGIA

THESIS FOR DEGREE OF M. HORT.

THOMAS HUBBARD MC HATTON

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by

Thomas Hubbard McHatton

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No. 1. A FORT VALLEY PEACH ORCHARD IN BLOOM.

## INTRODUCTION

The Georgia Peach Industry is a vast and extensive business; so great, in fact, that to write a complete commentary thereon is practically impossible. The peach has been intimately connected with the rise and fall of many sections of the state; the names and experiences of the men of national and local importance who have been interested in the game would in themselves fill quite a volume. The stories of varieties and the histories of the problems, scientific, practical and financial, that have been met and overcome would all make interesting reading, but are considered without the province of this paper.

The information presented has been collected from various sources. A great deal of it comes from personal observation and experience, some from letters of growers, some from books of references and articles and some from the Reports of the Georgia Fruit Exchange and its various and numerous personnel. The illustrations have been collected from time to time; some of them have been used before in other papers by the writer, others have been used by their owners in advertising matter and in articles and some of them are new.

It gives the writer particular pleasure to express appreciation and thanks to all of those numerous individuals who have, whether knowingly or not, contributed to the making of this paper. Especially are thanks

given to those who have responded gladly when directly asked for their pictures, information and experience.

It is not the intention of the author to go into any lengthy dissertation on the history or the evolutionary development of the Georgia Peach Industry, but simply to place a milestone from which progress may be reckoned. From small beginnings the peach business now stands as a monument to the sagacity and foresightedness of its founders; it is, however, at this time going through a serious period of its existence. Not only must it withstand the conditions of depression following the crazy inflation after the Great War, but it must also combat at the same time the accumulated evils of several years of most unfavorable climatic conditions. Should the growers succeed in going through 1921 with a safe margin of profit, the expansion of the industry within the state will be unprecedented, but should the season of 1921 be a failure, then the industry will find itself in the hands of those who can take their losses without losing their faith in the glory of the Georgia peach, those who are willing to stop and build again.

This paper is simply an exposition of conditions as they exist with just enough history and technical information to establish certain points. It is by no means a full and comprehensive commentary on the Georgia Peach Industry.



## HISTORY

The introduction of the peach, *Prunus persica*, into the various colonies throughout the new world was unquestionably the work of the early settlers. Gould, in his "Peach Growing", attributes the introduction of the peach into Georgia to Oglethorpe and his band of colonists. It is interesting to note, however, that William Bartram, in his "Travels through North America", which was published in 1791, first mentions the peach as one of the fruits of the country when he visited Saint Marys, a small town on the border line between Georgia and Florida. In his travels through the mountainous sections of North Georgia, North and South Carolina he does not mention the peach, and we may readily suppose that a man of his keen observation and loyalty to truth would certainly have listed this fruit had it been commonly produced.

P. J. Berckmans, the Dean of Georgia Horticulturists, attributed the introduction of the peach into Georgia mainly to the Spaniards, for many of the old original Indian seedlings seem to belong to the Spanish race of peaches.

Mr. Berckman's observations coincide with those of William Bartram, for the latter author mentions the peach mainly in the districts inhabited by the Seminoles, which nation of Indians were in league with the Spaniards. He fails to note much concerning the peach





in the territory of the Creeks and Cherokees, which nations of Indians were in league with the English and antagonistic to the Seminole nation.

The first real effort to obtain a superior peach for Georgia and the South was made by P. J. Berckmans when he introduced the Honey into his nurseries near Augusta. The seed of this peach was sent originally to Charles Downing. He feared the rigors of his native climate and forwarded them to Mr. Henry Lyons of Columbia, South Carolina. Mr. Lyons fruited them in 1856. A few were propagated at Fruitland Nurseries by Berckmans in 1857 and Berckmans purchased the trees with full rights from Lyons in 1858. The Honey did not prove adapted to Georgia, but this variety with many of its close kin are still grown in Florida. It is such an early bloomer that in Georgia it suffers from frost practically every year.

Between 1870 and 1875 several early varieties, like the Alexander, were introduced. In 1885 P. J. Berckmans introduced the Peen-to, but, like the Honey, this did not prove adapted to the state. During the middle seventies Mr. Samuel H. Rumph of Marshallville introduced the Elberta, and about the same time the Belle made its appearance. From then on new varieties of peaches were constantly appearing. Names become so mixed that to get a complete list of the peaches having been grown in Georgia is impossible. It is also next to impossible to obtain definite information on the

number of varieties having originated within the state. A list made in 1910 had from twenty-five to thirty varieties and many of these are not now cultivated.

The first definite date of peaches being shipped from Georgia is found in the notes of P. J. Berckmans. The earliest shipments were made in 1858 to the city of New York. Many varieties were shipped; the boxes were ungraded and the varieties mixed in the containers. The average price in New York at that time was \$5.00 per bushel. The fruit was shipped to Charleston from Augusta, packed in small refrigerators and carried by steamer to New York. Some shipments of seventy-five bushels netted \$400.00 that year, but Berckmans states the next shipment was a dead loss. The variety, Columbia, which is not now grown in the state seemed to stand the shipment best.

The development of the refrigerator car made the present huge commercial peach industry of Georgia possible. Also the origin of the Elberta and other varieties of shipping peaches aided in the development. The first commercial season was in 1889. Such men as Samuel H. Rumph of Marshallville and J. H. Hale of Fort Valley were the founders and first large commercial operators. In 1898, just ten years after the first commercial shipments, 2,500 car loads were shipped out of Georgia, or something more than a million bushels. The industry has increased by leaps and bounds. There have, of course, been fluctuations, notably the appear-



ance of the San José scale, which insect killed millions of trees before methods of control were found. Recovering from that, the industry suffered a most severe set back in 1908 when a crop of 8,000 car loads was produced and the marketing end of the game fell down under the pressure. Millions of trees were dug up and destroyed following this crop, but out of the maelstrom there arose the Georgia Fruit Exchange. At the present time the industry is going through another serious condition, due to the ravages of the curculio and brown rot which troubles have been so serious for the past two years that, unless better methods are found and applied, the destruction of millions more of peach trees seems inevitable.

#### THE DISTRIBUTION OF THE INDUSTRY

The original commercial plantings in Georgia clustered about Marshallville in Macon County and Fort Valley in Houston County. There was also a large center around Cuthbert in Randolph County, in the middle southwestern section of the state. The industry in Randolph was wiped out soon after the advent of the San José scale. The growers in the central and main peach regions overcame the scale and survived. In the early days extensive plantings were made in the counties immediately surrounding and south of Houston and Macon.

A jump was then made into the northwestern section of Georgia from Marietta in Cobb County north to

the Tennessee line near Chattanooga. A large industry developed in this particular region but, through lack of proper production methods and because of poor marketing, the northwestern section has almost disappeared.

In the Fort Valley section, extending gradually north of the city of Macon, developments took place along the railroads radiating out of the city. The plantings along the Central of Georgia Railroad toward Forsyth and Griffin did not mature nor take place as rapidly, nor have they survived as well as plantings along another branch of the Central Railroad, from Macon to Gray and Monticello. There are other developments in various directions from Macon, but none of them have yet attained much importance.

One of the newest centers is found in Habersham County in the northeastern section of the state, the main plantings being around Cornelia. This section also extends into Hall and Bank Counties.

The Georgia State Horticultural Society subdivides Georgia into four horticultural regions. These regions are shown on the accompanying map. The peach sections of Georgia are likewise shown on the map. The northern section is in no manner as large as the central section. There are other developments taking place that bid fair to increase rapidly now that the farmers are looking for another money crop. The section around Randolph County is again becoming prominent. The northwestern region is being resuscitated and brought again



into profitable bearing.

A letter in 1919 from one of the prominent peach men in the state says, "One of the great lessons from this year's crop is that no longer can the Fort Valley section consider itself the only peach producing region within the state, for the crop of 1919 has demonstrated that peaches are grown commercially in Georgia from the Florida line to the mountains, and from the Chattahoochee River almost to the sea". The student of the peach game, however, must still recognize that the Fort Valley-Marshallville section, shipping more than half the peaches, is really the home of the commercial Georgia peach.

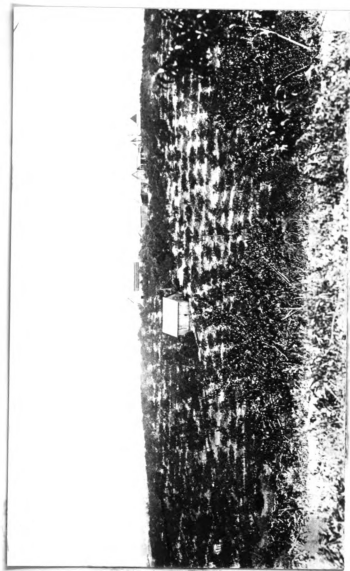
#### PLANTINGS, YIELDS AND RETURNS

At the present time Georgia leads the other eleven southern states, if West Virginia is included as such, in the production of peaches. The estimated value of the southern fruit crop was approximately \$30,000,000 in 1920. The total crop of the whole south is just about equal to the crop of California, but in 1919 when a great demand for fresh fruit was developed, California shipped about 8,000 carloads or a little more fresh fruit than was shipped from Georgia the same season.

The census of 1910 gave Georgia 10,609,119 bearing peach trees with a production of 2,555,499 bushels. This is one quarter of a bushel per bearing tree. The census figures for 1920 are not yet available. From the Year Books of the United States Department of Agriculture







No. 3. A NORTH GEORGIA ORCHARD.

and Reports of the Georgia Fruit Exchange the following statistics are obtained:

<u>Total Production</u>	
<u>Year : Production in Bushels</u>	
<u>1915 :</u>	<u>5,330,000</u>
<u>1916 :</u>	<u>3,510,000</u>
<u>1917 :</u>	<u>4,716,000</u>
<u>1918 :</u>	<u>6,092,000</u>
<u>1919 :</u>	<u>5,895,000</u>

<u>The Commercially Shipped Crop from Georgia</u>	
<u>Year :</u>	<u>Carloads</u>
<u>1915 :</u>	<u>4,468</u>
<u>1916 :</u>	<u>3,199</u>
<u>1917 :</u>	<u>3,869</u>
<u>1918 :</u>	<u>8,052 this being the highest year.</u>
<u>1919 :</u>	<u>7,403</u>
<u>1920 :</u>	<u>6,087</u>

The estimated figures for bearing trees in 1919 were 18,000,000, or an average yield for that year, in commercial peaches, of .32 bushels. The record yield of peaches in Georgia is seven carloads of 500 crates each from five acres. This crop was produced and handled by Mr. E. J. Willingham and was grown in the early stages of the peach game. An exceedingly good crop is from two to three crates per tree. The well cared for commercial orchards will produce annually a crate per tree. This

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may be considered a profitable crop. It must be understood that the six basket crate that is shipped from Georgia carries only three-fourths of a bushel of peaches.

The returns from a peach orchard are problematical, much more so than with other crops. The well cared for planting can reasonably be expected to make a return of \$100.00 net per acre per year. During the years of 1916-17-18 profits were enormous, even from large orchards, the dividends being at the rate of from five to ten percent on a valuation of \$1,000 per acre. The uncared for and neglected orchard, on the other hand, is an expense to its owner. The men who stuck to the peach business through losses and frosts, through poor seasons and good, have practically all made money, many of them having accumulated large fortunes.

It is interesting to note that the leading fruit spirits around Fort Valley, in the early days of the peach boom, were men from Ohio, Connecticut and other states north of the Ohio River. There is today only one large peach grower in Fort Valley who came there originally to go into the peach business. All of the enormous orchards and huge plantings that were once established with out-of-the-state capital are now owned by local men. The boom and speculating spirit that is so often seen in western fruit communities does not exist in the Georgia peach sections. Practically none of the orchards are for sale. They are owned and managed by men who make the growing of peaches their primary business.



## VARIETIES

Within the forty odd years since the discovery of the Elberta there have been many varieties tried and tested by the growers. Some of these have come in, carrying with them all the promise of a great success: many of them have disappeared and are no longer to be found within the orchards of the state. It is easy to realize that varieties, to be of commercial importance, must be those that can carry well, for it is 1,000 miles or more to the centers of consumption from the Georgia peach areas.

To give some idea of the distribution of varieties, the Fort Valley section in 1919 shipped 1,000 carloads of Mayflower, Arp Beauty, Uneda and other incidental early sorts. There were 600 carloads of Carmen shipped from that immediate vicinity, 1,300 carloads of Hiley, 1,800 carloads of Belle and 2,600 carloads of Elberta. It is the consensus of opinion that the early fruit game is being overdone, and by this is meant the production of varieties that move before the Carmen. The biggest peach grower in Georgia says that there are only four varieties to grow and he names the Carmen, which he considers the best early peach, to be followed by the Hiley then the Belle and the season to end with the Elberta.

The main early peaches are the Mayflower, the Uneda, the Arp Beauty and the Early Rose; the Greensboro, which at one time was very prominent, is disappearing as it does not ripen evenly.



The distribution of varieties can well be seen from the answers to an inquiry forwarded to growers in various districts.

A grower from Cohutta, Georgia, which is within a few miles of the Tennessee-Georgia line, states that his plantings are 80 percent Elberta as it is the main market variety. He has about 10 percent of early varieties of Greensboro, Carmen and Hiley and 10 percent of late varieties as Solway, Smock and Heath. These latter are planted to extend the season and the local supply. He states that he makes practically no profit on anything except the Elberta.

A Baldwin, Georgia, grower, in the Northeastern section, says that he has 15,000 Elberta trees and 2,000 Belles.

Another letter from the same locality shows an orchard of 21,000 trees, all Elberta, with a normal crop of forty carloads.

A reply from a grower at Bradley, Georgia, north of Macon states that he has 3,500 Carmen, 4,000 Hiley, 9,000 Belle and 6,500 Elberta.

Another grower from the same place has 1,000 Arp Beauty, 2,500 Carmen, 1,500 Hiley, 2,500 Belle and 2,000 Elberta.

Another Bradley man has 2,500 Elberta, 2,500 Belle, 2,500 Hiley, 2,400 Arp Beauty, 2,500 Carmen and 2,200 Mayflower.

And likewise another one has an orchard of 1,000 Carmen, 1,000 Belle, 2,000 Hiley, 2,000 Elberta, 1,000 Arp Beauty, 1,250 Uneeda and 500 Solway.

While still another says he has 22,500 trees divided as follows: Carmen 35,000, Hiley 4,000, Belle 9,000 and Elberta 6,500.

A reply from an owner at Gray, Georgia, was that he had 4,000 Carmen, 5,000 Hiley, 4,000 Belle and 4,000 Uneeda.

Another grower in the same locality has 2,500 Belle, 2,500 Carmen, 3,000 Uneeda and 1,500 Arp Beauty.

It can be seen that the growers in and around Bradley and Gray are going pretty heavily to the early fruit.

A grower at Haddock, Georgia, which is near Macon, has 7,000 Elberta, 3,700 Carmen, 3,000 Belle, 4,000 Arp Beauty and 750 Mayflower.

Replies from growers in Fort Valley show that one gen-





tleman who has 57,000 peach trees has his varieties divided as follows: 7,000 Mayflower, 7,000 Red Beauty, 7,000 Uneeda, 4,000 Arp Beauty, 5,000 Carmen, 2,000 Waddell (this variety ripens practically with the Carmen), 14,000 Hiley, 5,000 Belle and 8,000 Elberta. A great many of these trees are young and it is expected that when the large number of early varieties come into bearing, this grower will take them up and replace with something which ripens with or later than the Carmen. He states further in his letter that his season begins with the Mayflower, which ripens with them from the fifteenth to the twentieth of May, and that the Fort Valley season ends with the finishing of the Elberta something after the fourth of July.

Another Fort Valley grower divides his 10,000 trees into the following varieties: 500 Mayflower, 5,000 Queen of Dixie, 2,000 Arp Beauty, 1,500 Belle and 1,000 Elberta.

Another 15,000 acre orchard is divided as follows: 4,000 Belle, 3,000 Hiley and 8,000 Elberta.

Mr. R. A. Hiley of Fort Valley in answering the inquiry, states that his 6,000 trees are divided into 2,000 Hiley, 2,000 Uneeda and 2,000 Early Rose. His letter is of interest as it contains the following information regarding the origin of the Hiley: "The Hiley Belle or Hiley was produced from a seedling planted by us about 1893 or 1894. It being one tree out of about one hundred trees that we experimented with, but decided that the others were worthless. We planted seed from our orchard of Elberta, Belle, Tillotson and Early Crawford which we had at that time, and we believe the parent varieties were the Belle of Georgia and the Tillotson, as it shows distinct kinship to these varieties, having the size and flesh of the Belle of Georgia and the beautiful rich color of the Tillotson".

Another Fort Valley grower has 31,000 trees: 7 percent Greensboro, 20 percent Uneeda, 8 percent Carmen, 35 percent Hiley and 30 percent Elberta.

Another grower has 4,000 Hiley, 4,000 Elberta and 3,000 Belle.

A grower from Winchester, just south of Fort Valley, has the following distribution of varieties: Red Bird 2,000, Gordon 3,000, Carmen 8,000, Hiley 8,000, Belle 10,000 and Elberta 9,000.

The Berckmans Brothers, sons of P. J. Berckmans, in their orchards at Mayfield, Georgia, located east of Macon on the Georgia Railroad and in the southwestern section of Warren County, had the following arrangement of varieties a few years ago: Carmen 4,000, Hiley 8,000, Belle 9,000, Elberta 11,000 and Bracket 350.



The above statistics on varieties may be accepted as typifying the general distribution throughout the state. The main pivotal varieties, around which the Georgia industry is now developed, are the Carmen, Hiley, Belle and Elberta. Late peaches are little grown because the warm and moist summer climate requires constant attention to spraying and renders the late crop practically worthless except for local consumption. All of the growers realize that no peach going on the market prior to the Carmen is right up to the standard in quality and the recent great development in early plantings has been brought about through large profits having been made by a few growers, whom we may say, speculated in early fruit. It is well recognized, at this time, that the early fruit business has been overdone, and those who are familiar with the industry do not expect the early peach to develop beyond its present state. The larger and more up-to-date growers are actually discouraging the further planting of these earlier maturing sorts.

## SOILS

Practically all soils in Georgia seem to be well adapted to the production of peaches. The Orangeburg clays and clay loams around Fort Valley were the primary peach soils within the state. In the more southern sections the Tifton sandy loams and Norfolk sandy soils have been used for the production of peaches. These lighter soils, however, are badly infested with

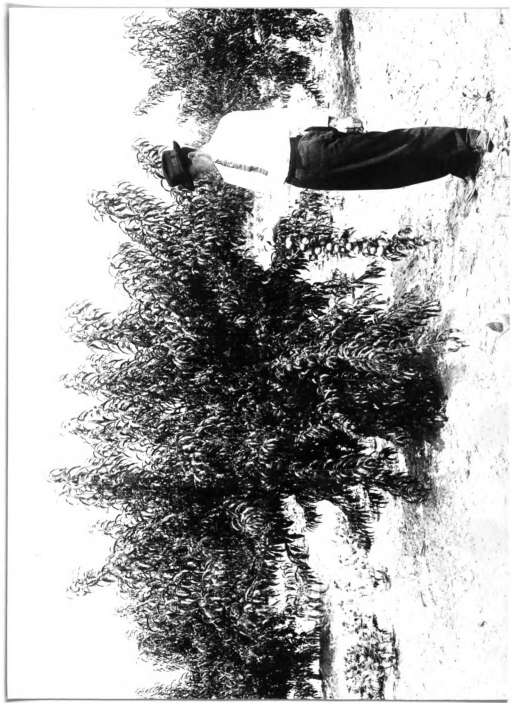
the nematode worm and produce trees that are comparatively short lived. The Greenville clay loams and pebbly Greenville soils, which are found in some sections of South Georgia, are also excellent peach lands.

Practically all of the peaches, north of Macon, are set on the Cecil clay. This is a strong, heavy, red clay loam and produces excellent trees and fine fruit. This Cecil type of land might be said to be the predominating soil in the Piedmont section; phases of the Cecil are also found in the lower sections of the mountains.

There are certain soils around Cedartown, in the northwestern section of the state, which run remarkably high in iron and at one time they were extensively used for peach lands.

The longer lived trees are found on the Orangeburg and Cecil soils; but, generally speaking, one does not consider the life of a peach tree in Georgia as long. Some four or five years ago, there were removed some of J. H. Hale's original plantings which were set thirteen feet apart each way. These were on the Orangeburg land near Fort Valley and had been profitably bearing around twenty years. The well cared for orchard in Georgia, however, does not exceed ten or twelve years in length of life; and when one takes all trees into consideration, it is generally accepted that the average life of a peach tree in this state is seven years, though, of course, the better growers expect their trees to be profitable for ten or twelve, after which time they are removed to be





No. 4. A WELL-CARED-FOR TREE.

followed, within a few years, by a new planting.

### TREES AND PLANTING

The trees usually purchased by the Georgia grower are June buds from a foot to eighteen inches tall. Occasionally June budded trees of larger size are used, provided the prices are attractive. The planting of one year peach trees is practically never done.

Mr. J. H. Hale set his early orchards 13 x 13 feet. It was soon learned that this was too close and for a long time the average distance was 16 x 16 feet. This was gradually increased to 16 x 18 and 18 x 18 feet. The approved distance now is 20 x 20 feet which gives 108 trees to the acre, and there are some growers who maintain that the larger growing varieties, like the Elberta, can well be set at greater distances. The advent of the tractor has had a tendency to increase the distance of planting.

The general method of planting trees, where the land is level, is to first plow the whole area. The rows are then laid off and checked with a one-horse plowstock fitted with either a middle-buster or scooter point. Following this a two-horse plow is used to open a water-furrow along the line of trees. The bottom of this is sometimes broken with the scooter; where this does not sufficiently deepen the furrow for the reception of the trees, it becomes necessary to increase the depth, at the check, through the use of a mattock.



There is one large grower, whose main plantings are on the Cecil clay lands, who prepares his land as above mentioned. He then puts two negroes on parallel tree-rows with mattocks. These walk from check to check and deepen the furrow at the check. Following immediately behind them is a man, with a bundle of trees, who prunes the roots and drops a tree at each check. Back of him are two other negroes who set the trees, raking sufficient soil around their roots with the feet to hold them upright. The final covering is done by plowing a furrow, with a two-horse plow, to the trees. Sometimes a pound of cottonseed meal, raw bone meal or a fork full of well rotted manure is thrown about the young trees before this furrow is plowed. The next operation is to send a man down each row and let him tramp in the tree and prune to a whip from eight inches to one foot high. It is then customary to plow a second furrow around each tree row. This grower tells me that with a gang of six negroes and two plows he can set 2,500 trees a day.

This method of setting by plows is followed throughout the state, wherever the land is level enough to permit it. In some of the Piedmont orchards and in the foot-hill orchards, it becomes necessary to terrace the land and to plant the trees by the ordinary method of laying out the orchard and digging holes. This is, of course, more expensive as it takes a good deal more time and labor to set an orchard in this manner.



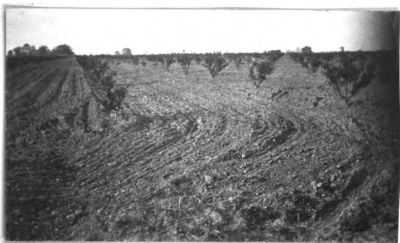
No. 5. A GOOD TREE, BUT OVERLOADED.

Naturally the plow method of planting could not be followed should the growers use trees that were one year old and larger. It is only feasible and successful where small June budded trees are set.

#### CULTIVATION, CROPPING AND COVER CROPPING

For a great many years the cultivation of Georgia peach orchards was conspicuous by its absence. The young peach orchard was planted to cotton for its first three years of life and it is probably true that the cotton received greater attention than the peaches. Corn was not considered a good intercrop for young orchards: this grew out of the fact that when corn was planted, the grower seemed to forget the presence of the trees and they had the same chance for growth as a corn stalk and usually developed in about the same way, therefore, corn grew in disfavor as an orchard crop. After the trees came into bearing, cultivation depended entirely upon whether a crop was set or not. When a crop was lost in an orchard, the trees were forgotten until the next year. If, however, a crop happened to be set the trees would be plowed and the soil stirred, in some way, once or twice before harvesting; after the fruit was gathered the orchard was turned over to the weeds.

The past decade has seen a marked improvement in handling Georgia orchards. In the more up-to-date sections, the orchards are plowed in the fall or during the winter; particularly is this the practice



No. 6. A WELL-CULTIVATED ORCHARD.



WINTER COVER OF SMALL GRAIN.  
WELL-PRUNED LOW-HEADED TREES.

where the land does not wash. In the hilly and Piedmont sections plowing is postponed until the last of February or March. Following the plowing, the orchards are then harrowed, and where tractors can be used, this harrowing is most excellently done. In some of the orchards the tractor and the heavy disc harrow are used instead of a plow; this is generally so in orchards on the lighter phases of soils.

Surface cultivation is practised until about harvest time. In some orchards cultivation is stopped before the harvest and the soil sowed to cow peas. In others the sowing of cow peas is postponed until after the harvesting of the crop. The usual time for planting cow peas is during the first of June; and the varieties of cow peas used are Iron and Brabham. These are the most favored and practical ones as they are resistant to the nematode, and the growers have learned that every possible effort must be made to prevent these little pests getting on the tree roots.

These peas are allowed to grow until fall. Sometimes the matured peas are picked. It is very seldom that a crop of hay is made in a peach orchard. On the level lands these peas are plowed in during the fall and winter.

The growers around Fort Valley have been growing peas so extensively in their orchards that they are now suffering from an excessive leaf growth, which has rendered spraying very difficult for the past few years. They are now seriously considering the use of some other

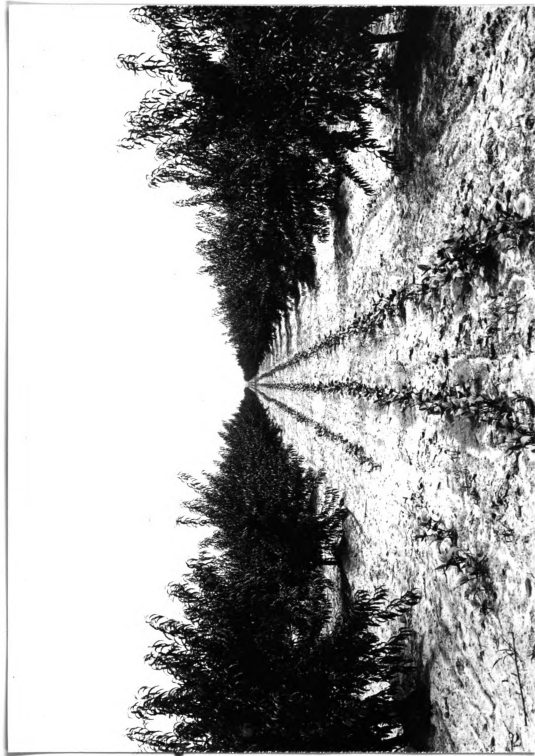
cover crop in lieu of the peas. There are a few orchardists in the Piedmont regions who plant a crop of peas for a summer catch crop, work these into the soil and plant a small grain for a winter cover crop, this small grain crop being plowed in the following spring before it heads. Such a system is followed, however, only on hilly lands that wash and where fall and winter plowing is not advisable.

After the first two or three years no money crop is raised in the peach orchard by the up-to-date grower. There are still scattering instances of men who do not plow, cultivate, prune and care for their orchards at all, but these men are becoming fewer annually. The growers have even learned to give their orchards just as good care during poor crop years as during the season of heavy fruiting.

#### FERTILIZATION

The general practices of fertilization are not yet established. The growers in the Fort Valley section have applied a great deal of nitrogen, large quantities of it being in the form of legumes. They think now that they have too much nitrogen in their soil. One said recently, in speaking of a spray compound, that he liked to use it because it knocked the leaves off of his trees and he had found it necessary to get rid of some of his foliage every year.

There was a time when large quantities of



No. 7. PEAS FOR SUMMER COVER-CROP.

potash were used, but with the advent of the war the use of this material had to be reduced considerably. There are today, however, men in the main districts who believe that the use of potash and acid phosphate will go a long way toward giving fruit better carrying qualities.

There are no definite results yet to be had on fertilizing peach trees in Georgia. There are at present several experiments under way, but these experiments are only two or three years old and no conclusions have yet been reached. The College of Agriculture has fertilizer experimental plats in most of the main peach regions of the state, and it is hoped that within the next four or five years some valuable information will be at hand.

The common custom is to apply one pound of cottonseed meal and acid phosphate mixed together, a fork full of barnyard manure or a pound of bone meal at planting time. Some idea of the methods of fertilization practised by the growers may be had from the following letters.

One man states that he does not use fertilizer. Another says, "I use mixed fertilizer made of raw bone meal, nitrate of soda and sulphate of potash, running about 10-2-10. I vary the amount of ammonia and potash to suit different soils. I am not using potash this year as \$500.00 per ton is too steep for me. I am using some lime."

It is to be noted that 10-3-10 means 10% phosphorus acid, 3% nitrogen and 10% potash. It is the custom in Georgia, when speaking of fertilizers, to always call the phosphoric acid first, the nitrogen second and potash last.



One of the up-to-date growers in northeast Georgia says, "We have used a 12-3-5 fertilizer, about 500 pounds per acre. At present we are supplementing the fertilizer with cow peas as a cover crop and are experimenting with clover as a winter crop. Our stable manure is put on as fast as it is made. I think we have not used enough nitrogen but think that the clover and manure, deep cultivation in the fall and more frequent cultivation in the spring will remedy this."

A grower on the Cecil clay in central Georgia says, "I use about 300 pounds of 10-2-0 to the acre or around two pounds to the tree".

Another one in the same neighborhood says, "I use a 10-2-2 guano and put about four pounds to the tree on my old trees, and about three pounds on my young trees with satisfactory results".

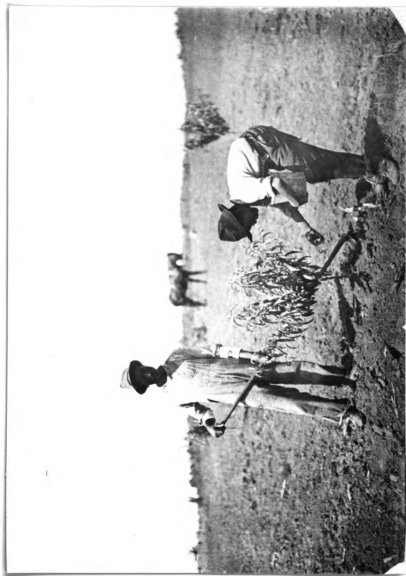
Another grower answers by stating, "We use common guano, two pounds to the tree". I presume this "common guano" referred to is the general 10-2-2 fertilizer so commonly sold throughout Georgia.

Another grower says, "I use lot manure principally, about three tons to the acre and about every other year I use two pounds of 10-2-0 corn fertilizer to a tree".

Another grower in that section answers, "I use 16% acid and cottonseed meal, half and half, about two pounds to the tree". This half and half mixture of acid and cottonseed meal has been very commonly in use since the war.

One of the growers in the Fort Valley district states, "I fertilize with stable manure and one and one-half pounds of commercial fertilizer per tree. I am using 9-3-1 guano this season. Before I have been using a larger percent of potash".

Another Fort Valley man writing in detail of the fertilizer practices in that section says, "Growers use various amounts of fertilizers. In planting out trees last spring I dynamited them and also fertilized them by mixing top soil and manure when planting. Then later I put about two double handfuls of cottonseed and later on I put a pound of raw bone meal to each tree. The second year these trees can be fertilized with two pounds to the tree of raw bone meal and a third year they should have at least two pounds and a little potash would not be amiss that season, as these early varieties sometimes have quite a crop the third year. I intend to fertilize them after they grow older to the extent of five or six pounds of a well balanced fertilizer per tree, analyzing around a 8-2-4. Of course at the present time, the growers are not using potash as they cannot get it".



№8. FERTILIZING A YOUNG TREE.

Another grower says, "This year I used as fertilizer stable manure to the amount of six pounds to the tree. I would have used more if it could have been obtained."

One grower answers, "I use five pounds of fertilizer per tree and use a \$36.00 per ton quality". It is hard to understand just what he means by this.

A prominent Fort Valley man states, "The best fertilizer for trees should contain 40% by weight ground bone meal, 40% dissolved bone meal and 20% sulphate of potash. Use three to five pounds to the tree".

One prominent peach grower says, "The best bought fertilizer I have ever used on my orchard is Baugh & Sons fruit and berry guano which runs about 8% phosphorus acid, 3% nitrogen and 10% potash. As to the amount, it is only a question of how much one's pocket-book can stand, the more used the better results. I believe an orchard should be limed occasionally. I also believe that stable manure, used in moderate quantities is helpful and that Brabham or Iron peas are beneficial planted in rows and cultivated".

A prominent grower in eastern Georgia writes, "On hearing trees we use the following mixture: raw bone meal 1,400 pounds and sulphate of potash 600 pounds, using from two to five pounds per tree. For fertilizer on young trees I use stable manure as far as procurable and then the following mixture: bone meal and cottonseed meal mixed in equal parts, using about one and one-half pounds to the tree".

The fertilizer is generally applied in the early spring, in March, just after plowing. Some of the growers at one time used a top-dressing of nitrate of soda, but peaches produced on trees so treated did not seem to carry well, so the nitrate of soda top-dressings have been abandoned. Practically all of the fertilizer is applied in concentric circles around the trees. Some may be used broadcast where intercrops are planted; but generally speaking, the crops are fertilized aside from the trees. The quotations from the above letters give a pretty good general idea of peach orchard

fertilization in this state.

#### PRUNING AND THINNING

The average Georgia peach grower does not thin his fruit. Occasionally in heavy crop years, certain varieties require the removal of the fruit after it has set, and some of the advanced growers occasionally practise thinning. For example, one states, "I cannot give you the cost of thinning the fruit as this varies quite a lot. Some trees and varieties need thinning while others do not".

A great many of them in answering letters regarding the question of thinning, state that they have never thinned and that they fear the cost. An occasional grower will practise thinning on the early varieties as they have a tendency to overbear and be small.

One grower says, "I thin the Mayflower and Queen of Dixie, none of the others".

One advanced grower remarks, "I have no accurate figures on the cost of thinning, but the quality of the fruit where this operation is performed makes the cost of doing the work small by comparison".

The pruning of the Georgia peach orchard is comparatively simple. The trees are all headed low. It is natural where certain practices prevail that individuals will go to an extreme, and there are some orchards in Georgia where the trees branch so close to the ground that an ordinary furrow thrown to them will cover the head



of the tree. This is not considered advisable by the best growers. The ideal Georgia tree is headed some eight inches to a foot above the ground. The usual number of main limbs is three, but sometimes four or five are found.

The pruning at the end of the first season consists in choosing the scaffold limbs, some three or four in number, and removal of everything else. These scaffold limbs are cut back to from one foot to two feet in length; this, of course, being determined by the amount of growth that a tree makes.

The third year's pruning consists in the removal of the majority of the main shoots in the center of the tree, the general thinning out of the scaffold limbs and cutting them back to approximately the height of the shoulder. Naturally the amount of cutting back is determined by the growth of the tree. It is not uncommon for a young tree, in its third year on good land, to make seven or more feet of growth. By judicious pruning at the beginning of the third season, a small crop may be had that year. Particularly is this true for the early varieties like Mayflower, Uneda and Carmen. The Elberta is not expected to produce much of a crop until its fourth season.

The Georgia peach tree is established by the end of the third season, and in the properly pruned orchards trees are never permitted to get so large as to prevent the picking of all the fruit from the ground. No



No.9. LOW-HEADED TREE, EASY TO PICK.

ladders are used in Georgia peach orchards, nor are the trees climbed into. The effort of the grower is to keep the tree low and to keep fruiting wood constantly growing from the head of the tree to the tips of the main limbs. This is done through severe heading back.

The pruning is done at convenient times during the winter. Last year, 1920, after a very severe infestation of curculio and brown rot in the Fort Valley section where the foliage was so thick that it seriously interfered with spray applications, some of the growers practised late summer pruning, that is, thinning out. This, however, is not a general practice and was only done under stress of circumstances.

## INSECTS

A peach tree in this state is subject to all of the ordinary peach insects. The three, however, that head the list are the San José scale, the Curculio and the peach tree Borer.

The San José scale, *Aspidiotus perniciosus*, is no different in Georgia than elsewhere. It only has the advantage of a long summer season, for it may start its activities in March and they need not be curtailed until the last of October. Soon after its advent into this state, it completely wiped out the industry in certain sections, but now it is controlled by the ordinary means.

The Curculio, *Conotrachelus nenuphar*, has long been the serious enemy of the Georgia peach. Years ago Mr. J. H. Hale was jarring thousands of trees at Fort

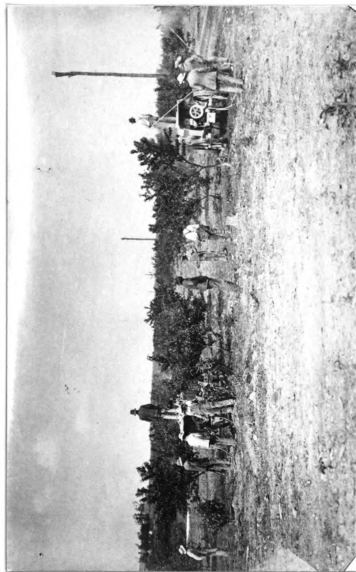




Valley in an effort to control this pest. A development of the arsenical sprays was a great boon to the Georgia peach and for years the curculio seemed to be under complete control, but during the seasons of 1919 and 1920 the curculio so attacked the crops that they were rendered practically worthless and these two seasons instead of being highly profitable were money losers for the growers. Not only did they lose their money but they likewise lost their reputation. As a consequence this season, 1921, finds the United States government in cooperation with the state authorities making extensive investigations on this insect at Fort Valley. So many of the insects developed during the past two peach crops that many are questioning the life history of this pest. Up to the present time only one generation has been acknowledged, but indications in 1920 were such that it was thought advisable to make a much closer study of this insect. This past year the growers have thoroughly cleaned up their orchards, raked up and burned and cleaned out all the hedge rows and patches of woods in which the curculio could hibernate, and even with that, the 19th of March, 1921, something over 3,000 curculio were collected on 400 trees, and at that date the trees were just in condition to receive their first arsenical application.

Temperature conditions during the past two winters have all been in favor of the curculio. As a matter of fact, there has not been a very cold winter in Georgia





Nº 10. SPRAY SCENE.

since 1917, and during the winter of 1920-21 the coldest temperature recorded on the College thermometer was 25° F. and there is every reason to expect a very large carry-over of this insect. Coupling this with the fact that the past two fruit seasons have been very humid and the spray naturally ineffective due to too much rain, the curculio have had a grand opportunity to increase and live through. The Fort Valley section has not had a complete fruit failure in over seven years and this pest has gradually increased with everything in its favor, including a certain amount of careless spraying on the part of the growers.

The peach tree Borer, *Sanninoidea exitiosa*, is considered by many our most serious insect, due to the fact that it is very hard to control. There is only one generation of this insect and the moth is laying her eggs in Georgia during the last of July and from then on until frost. The eggs hatch and the larvae leave the tree during the last of June, and early in July they enter the ground and in about three weeks appear again as moths. Their egg laying starts around the first of August. The general method of fighting this insect is mounding in July and August. This mound is then removed from the trees in the fall and winter and a search is made for the worms, they being removed with a knife.

All kinds of mechanical protectors and contrivances have been tried to control this pest, but they have all proved unsuccessful. Last year the use of paradichlo-



robenzene was followed in Fort Valley and from the results obtained it is probable that this material will increase in use as it is most effective. Prior to the season 1920-21 the United States government had been experimenting with this material in the control of borers, and they recommend the application of one ounce of paradichlorobenzene to each peach tree in a circle from four to five inches from the trunk, scattering the ounce completely around the tree. This is then worked into the ground with a light hoe, the application being made in October, and in three weeks to a month afterwards the ground should be again stirred so as to eliminate the gas that was accumulated. Applications made to trees less than five years old result in the death of the tree, but on older trees paradichlorobenzene destroys the borers without injury to the plant.

#### DISEASES

The important peach diseases in Georgia are Brown Rot, Leaf Curl, Crown Gall, Rosette and a disease known as the Phoney disease. Our industry as yet does not suffer from the Little Peach, which is so common in Michigan, nor the Yellows, which has taken such heavy tolls from the industry in other sections. Neither one of these diseases is known within the state of Georgia.

Brown rot, *Sclerotinia fructigilia*, is the bane of the Georgia peach grower's life. It rots his fruit on the trees, in the packing house and on the way to market.

The discovery of self-boiled lime sulphur by Mr. Scott, which fungicide was developed within the Fort Valley section, seemed to be the salvation of the Georgia fruit producer and where careful spraying was practiced the brown rot was held in check. The growers had been so lucky for some five or six years that they no longer feared the rot, but the seasons of 1919-20 have again given them a great respect for this dreaded disease. These seasons were very moist, the rainfall in the peach region being several inches above that of normal during the growing and harvesting season. Coupled with this the curculio so predominated that practically every peach was stung, and wherever the insect injured the peach the rot followed immediately. The control of the curculio seems to be a great factor in the control of the brown rot, and the experiments being conducted this season at Fort Valley have in mind the control of this disease as well as that of the curculio.

The peach leaf curl, *Exoascus deformans*, during the early stages of the industry was very serious, but due to the universal spraying against scale, this disease does little harm in well cared for orchards.

Crown gall, *Pseudomonas tumefaciens*, severely attacks the peach in this state and where orchards become badly infested, they rapidly die out.

Rosette is a physiological condition and is the trouble that at one time was confounded with yellows by Mr. J. H. Hale. It, however, is a totally different dis-



ease. No causal organism has been found and no remedy yet suggested except the elimination of the diseased trees. Casual observation seems to show the condition to be more prevalent in the Piedmont regions of the state than on the coastal plains.

Phoney disease is another physiological condition of recent appearance. It seems to be more prevalent in the fertile sections where orchards have been highly fertilized, and the Elberta seems to be more susceptible than others. Practically nothing is known of this trouble as it has been noticed only for the past few years. Mr. McClintock of the Georgia Experiment Station has been making observations on this disease for the past two or three seasons, but has nothing definite to recommend. There is no remedy as yet for the same. The leaves on the infected tree become very black green and large; the plant bears no fruit and after a season or two is worthless.

#### SPRAYS AND SPRAYING

During the early life of the peach industry, there was no need, nor was there any system of spraying. The appearance of the San José scale in the orchards created a great disturbance and thousands upon thousands of trees were killed. I can well remember the discussion that took place in the eighteen nineties concerning the application of spray materials to peach trees. At that time the growers' only idea of spraying was with an ordinary garden hose and it was readily seen that applications of material by this means would be impracticable,

and a great many of them let their orchards go to ruin. Randolph County was at this early date one of the largest peach producing counties in the state and practically every orchard in it was wiped out.

The first experiments that were conducted for the control of the scale in the Fort Valley section were carried on by the United States Government, and kerosene oil was used. This early spraying with kerosene was very detrimental to the trees. The injury that the peach growers suffered at this time, not only from the scale but likewise from experimentation, shook their confidence in up-to-date methods and scientific procedure. As a matter of fact, their confidence was not reestablished until after the discovery of the self-boiled lime sulphur about 1908, and the demonstration of its effectiveness in combination with arsenate of lead in 1909.

During the first decade following 1900, spraying was practiced by some orchardists and neglected by the majority. A great many of them used the winter strength lime sulphur to control the scale, and thereby controlled to a certain extent the curl leaf. After the demonstration of the use of self-boiled lime sulphur against the brown rot as well as the use of arsenate of lead against curculio, spraying has gradually become more prevalent, and we might say, since 1910 all of the orchardists have sprayed. Their first work was done with barrel outfits. The Hale orchards were practically the first to be equipped with air pressure tanks and to practice spraying on a large scale. Most of the large growers soon began to use gaso-

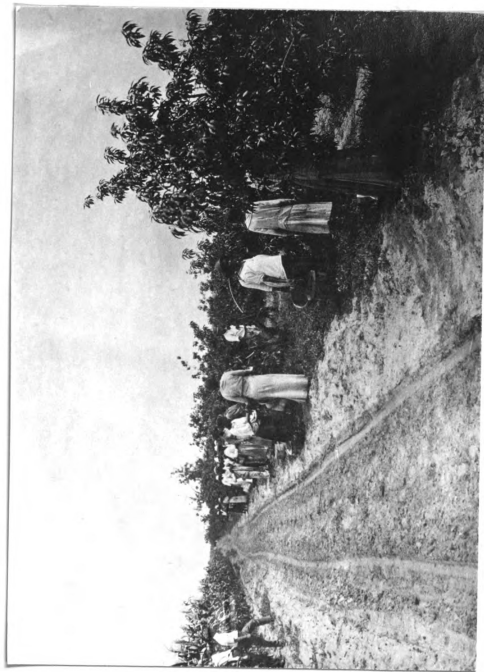
line power spray outfits of various types. Some of them still use these and others are using air pressure outfits. The largest peach grower in Georgia thinks that the spraying with air pressure is the most economical and surest way to get over large areas with the least trouble.

Within the past few years dusting has attained prominence. More dusting was done in 1919 and 1920 than in any previous years and some large growers have given up the use of liquid sprays, except for the application of the winter strength lime and sulphur. Dusting came rapidly into favor because larger areas could be handled with a fewer number of machines, and the possibility of dusting extensive plantings rapidly brought this type of insect and disease control to the fore. The experiments on dusting were conducted by the State Board of Entomology and the results obtained experimentally were excellent. The commercial results are also good, provided the work is carefully done.

The great trouble with spraying in Georgia in the last two or three years has been that the enormous size of the individual holdings required a great outlay for machinery, equipment and material, and the element of time became so important that a number of the larger growers went through their plantings so rapidly that they did not do a thorough job. Coupling this with the extremely warm winter and humid summer of the past two years, the curculio and brown rot practically took charge of the orchards.

Some large growers were not satisfied with dust-





No. 11. A FORT VALLEY PICKING GANG.

ing at an ordinary speed, but were contemplating the advisability of putting a dusting machine on a Ford automobile so that a greater amount of territory could be covered. It is easy to understand that such desire for speed militated against the proper application of spray dust and material.

The old schedule for sprays on peaches in this state was approximately as follows:

1. Winter strength concentrated lime sulphur was applied between the first of November and the middle of February. Some growers used scalecide and where the scale infestation was serious an early and a late application of lime sulphur was made and, occasionally, a grower applied scalecide in the fall and lime sulphur during February.
2. About ten days after the petals dropped, or as commonly expressed, when the shucks were falling, self-boiled lime sulphur and arsenate of lead were applied.
3. A second application of the self-boiled lime sulphur and arsenate of lead was made two to three weeks later.
4. On the Elbertas and peaches ripening about that time an application of self-boiled lime sulphur was sometimes made three to four weeks before the peaches ripen.

The schedule of spraying that is being followed this year and which has the recommendation of the Government, the State Department of Entomology and the Horticultural Division of the College is as follows:

1. The ordinary winter spray of concentrated lime sulphur, winter strength, 5 degrees Baumé, or scalecide is to be applied.
2. As the little shucks begin to split on the peaches, from five to eight days after the fruit has set, one pound of arsenate of lead powder and one pound of quick lime to fifty gallons of water is to be used.
3. Two to three weeks after this the application of self-boiled lime sulphur 8-8-50 with one pound of arsenate of lead powder to 50 gallons is to be applied.
4. Repeat this application in two to three weeks.

5. Where brown rot is feared, from two to three weeks before the ripening of the peaches, an application of self-boiled lime sulphur alone is recommended.

Where dusting is to be used instead of liquid sprays the formula recommended for application is five pounds of arsenate of lead, 10 pounds of sulphur and 85 pounds of lime. The dusting follows exactly the same schedule as the liquid spray.

These recommendations may be changed after the scientific study this season and a study of the commercial crop.

The Fort Valley section of Georgia has contributed largely to the spraying knowledge of this country. Not only was the use of concentrated lime sulphur against scale well demonstrated in this section but the first use of the self-boiled lime sulphur was made in Fort Valley, and the demonstration of the use of arsenate of lead as a control for the curculio was made in this section by the Georgia State Board of Entomology.

Georgia peach areas are getting to be such progressive spraying sections that the manufacturers of all kinds of new fangled sprays all make strenuous efforts to get them introduced. You will find growers trying and advocating all types and species of new remedies. They are all looking for a more efficient and economic material for the control of insects and diseases of the peach. Some of their experiments along these lines lead to sad results but once in a while something new develops that is worthy of further investigation and use.

#### PICKING AND PACKING

The harvesting season starts with the early



No. 12. UNLOADING AT PACKING HOUSE.



varieties about the middle of May and ends with the Elbertas in July. The last peaches shipped from the state come from the Cornelia or northeastern section during the last of July or very early in August.

In the main peach regions, practically all of the picking is done by negro labor. The gang of pickers are under the direction of a white foreman and the fruit is picked into round bottom baskets, holding five-eighths of a bushel. Under normal crop conditions it takes about three pickings to clean up a variety, the pickings being from two to four days apart, depending upon the variety and the season. Some varieties come in with a rush and it occasionally happens in special seasons that one and sometimes two pickings will clean up the given variety in an orchard.

Every effort is made to make the pickers handle the fruit carefully. They are cautioned not to mash it and not to drop it. It is, however, a rather hard matter to impress upon the uneducated negro the importance of careful picking. However, in the main fruit districts the pickers have been handling peaches for so many years that they are gradually improving in their work.

The five-eighths bushel baskets of peaches are then placed on low, broad wagons and are carried to the packing house. In many instances growers sell their product delivered at the packing house in these five-eighths bushel baskets, guaranteeing that a certain percent of the fruit in the baskets will go into the crates for sale. Sometimes growers are fortunate enough to sell their crop on the trees. This, however, is not as common a method of

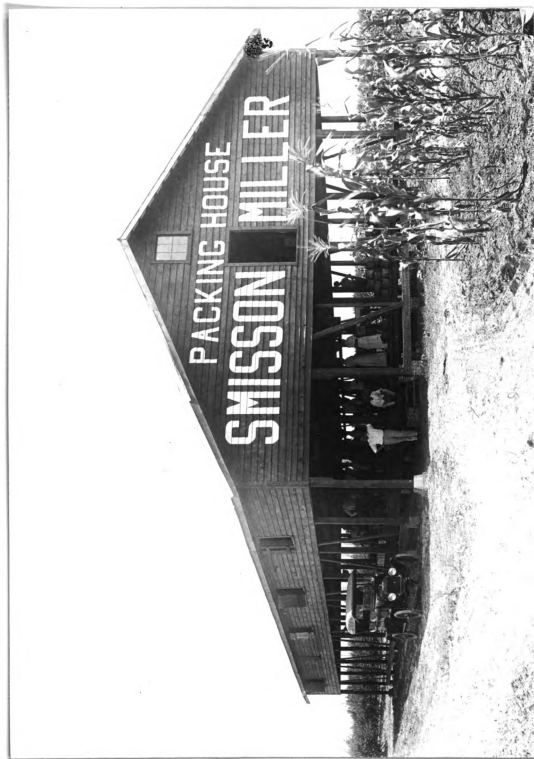


disposing of the crop as selling them delivered at the packing house.

The packing houses in this state are long, low buildings, open usually on three sides and sometimes on four. Under the old system, there were one or two lines of packing tables in each house, and the fruit was delivered from the wagons on both sides of the house. It was then placed on one side of the packing table and hand graded into containers in the center of the packing table, the packer standing on the opposite side of the table from the grader and packing the fruit into the ordinary six basket Georgia peach carrier.

The packs commonly used with the small peaches were the 3-3 and 4-3, with larger fruit the 2-3 and the 2-2. The extra large Elbertas were packed in 2-1 and 1-2. The finished crate was then carried to the inspector, passed upon, nailed up and, in many instances, put immediately into the waiting car as a good many of the packing houses are equipped with spur tracks.

The packing house labor is practically all white. The Florida packers come up from Florida to catch the peach season and then work up through the state and on into other sections. A great deal of packing is done by young girls in the immediate neighborhood. A day's work for a good packer is from seventy-five to one hundred and fifty crates depending upon the size of the peaches. When Elbertas are running large and packing the 2-1 or the 2-3 pack men oftentimes turn out as much as 200 crates per day. The wages



No. 13. PACKING HOUSE.

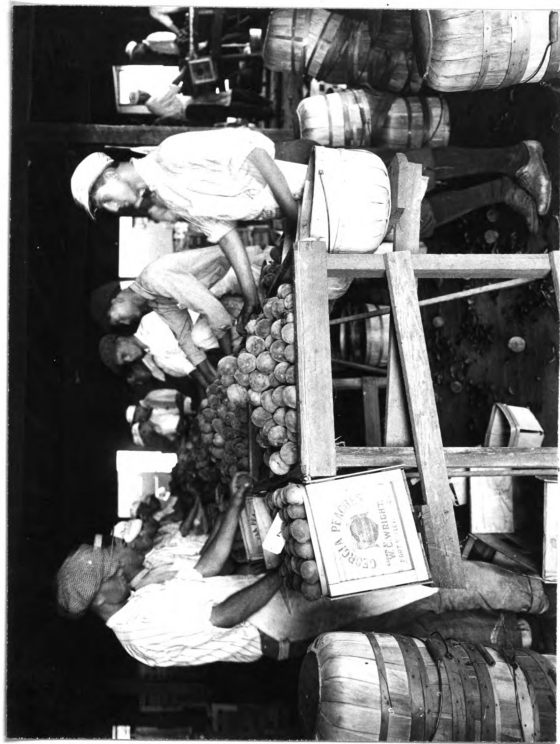
for packing fluctuate but are determined by the general wage of the season. Of course during the war period they were much higher than before. What they will be during the season of 1921 is not yet known.

During the past four or five years some new machinery has come into Georgia peach packing houses. In the most up-to-date plantings, hand grading has been stopped and the use of peach grading machinery has taken its place. The type generally used is the Skinner grader. This grader sizes the peach through diverging slats. The rotted and specked fruit is removed by hand. The sized peaches are then delivered by belts to the packers.

There is another type of peach grader not in very common use, which grades by diverging rollers, the difference between the slats and the rollers constituting the main difference between the machines.

During the past two seasons the use of the bushel basket has been gaining favor. The growers still recognize that their first class fruit had best be sold in the normal six basket crate. They, however, all go into a season with a good supply of bushel baskets on hand as these bushel baskets do not require so much skill in packing. They can, therefore, use ordinary labor in case of a packing house strike or in case the season so develops that more fruit ripens at a time than has been anticipated. The man, however, who is shipping only first class stuff and trying to hold his reputation uses the crate in preference to the basket. The basket is finding its place in the packing house, but it is to be hoped that the Georgia





№14. PACKING PEACHES.

peach will continue in the crate with the basket only being used under special conditions.

#### CAR LOADING AND SHIPPING

A carload of Georgia peaches runs from 448 crates to 532: the minimum load upon which freight is paid is now 476. It used to be 525, but as large loads did not carry well, the minimum has been reduced. A car with seven crates across and four high packs 448 crates; five high brings it to 532. The last crop went forward at about \$200 per car for freight and icing but the new freight rates increase this to around \$367 per car for the same service, or from seventy-five to eighty cents per crate.

In packing a car of crates, the first layer is put in and braced from the ends; these crates are then stripped before the next layer is put on top. If the load does not come out even in the center the two sides of the load are braced at the doors. An air space is left around each crate so there will be a good circulation in transit. The bushel baskets are packed three tiers high in the car and a load is four hundred.

The refrigerator cars receive their initial icing before being delivered to the shipping point. After loading, the car is given another icing and is re-iced again in transit. The normal time in transit runs around seventy-two hours.

There have been some experiments on precooling conducted at Fort Valley by the Government with marked



success but precooling is not practised at all in the shipping of the crop. Some few growers have ice houses in which they hold their fruit for a night before loading it in the cars, but orchards so equipped can be counted on the fingers of one hand. It is to be hoped that in time precooling stations will be established at some main centers by either the railroads or individual companies, for it is certain that the juicy Georgia fruit will then carry to market in a much better condition.

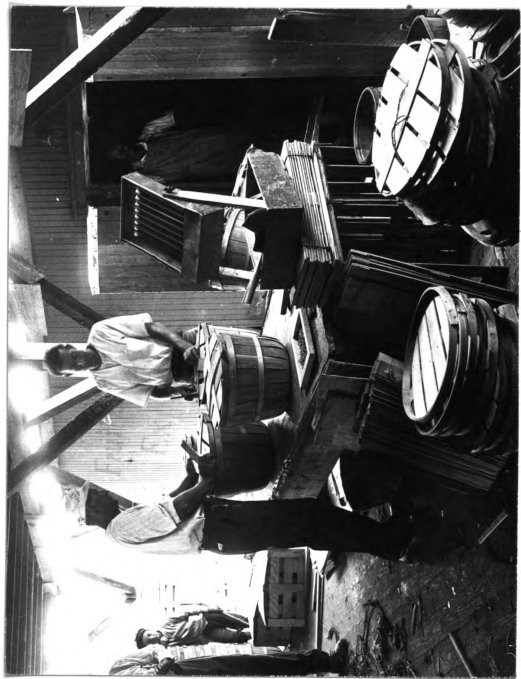
The Georgia Fruit Exchange, as well as the carriers and growers, are constantly experimenting on ways and means of loading and bracing cars so they will carry in better condition and arrive on the markets with the fruit in better shape. The old type of car, loaded with 532 crates, is never seen now as the upper tier of crates always was in poor condition upon arrival. It is permissible to pack five tiers high near the ice bunkers, but the middle of the car should not be over four in height.

The carriers gather up the cars from the packing sheds during the late afternoon and early evening and before midnight the long trains are leaving the main centers on their way to market. The Fruit Exchange takes charge of its cars as soon as they begin to roll, keeping in close touch with them until sold.

#### THE GEORGIA FRUIT EXCHANGE

The Georgia Fruit Exchange was organized following the disastrous crop of 1908. The largest output within the history of the state was forwarded to market during





No. 15. LOADING INTO CAR.

that year. The transportation companies were taxed to the utmost. There was no distribution of fruit. Everybody was shipping to New York and Philadelphia and the result was that, though a wonderful crop was produced and forwarded to market in good shape, everybody interested in the peach game lost money. Particularly was this true of the producer who was shipping his own stuff, and at that time every grower in Georgia did his own marketing.

The lessons of this season brought together men financially interested into the organization of the Georgia Fruit Exchange. This was a stock company at that time with \$10,000 capital stock to be sold only to bonafide peach growers. The Organization made its appearance in the field as a distributing agency in 1909. It accepted the cars of fruit as packed in the individual packing houses and undertook their distribution. As in all organizations of this kind, it met with some opposition.

The Georgia Fruit Exchange differs from the California Organization in that it has no supervision over the picking and packing of the fruit. At this time it has men who go from packing house to packing house instructing and watching the pack of the individual growers; but as an organization the Exchange accepts every carload that is sent out from large packing houses on the statement of the grower and packer. Where there are quite a number of small growers, the Exchange loads cars at the main peach shipping points, these cars being composite; that is being

made up of the fruit of several growers. This fruit, however, is packed by the individual grower and delivered to the car in the package. Little by little the Exchange obtained a stronghold in the distribution of the Georgia peach crop, and through its influence f.o.b. buyers have made their appearance in the state.

The history of the crop for 1915 as is found in report of the Exchange for that year is as follows: the shipments from the state for that season were 4,468 cars, of which the Exchange handled 2,997 or 67.1%.

Shipments from Georgia in 1916 were 3,199 cars. The Exchange handled 2,378 cars or 78.2%. In speaking of distribution that year, the report says that 875 were sold in the cities of the East, 12% in the cities of the West and 1% in the cities of the South.

Shipments for the year 1917 were 3,869 cars. The Exchange handled 2,789 cars or 73%. Through the agencies of the Exchange this crop was distributed to one hundred and thirty-four towns. During this year 28% of the crop went to the West and 72% to the East.

Shipments from the state in 1918 were 8,052 cars. The Exchange handled 6,615 or 82% of the total crop. For the five year period prior to 1918 the average portion of the crop handled by the Exchange was 61%. There were one hundred and ninety-one markets used during this year and 76% of the Georgia crop was sold f.o.b. Georgia.

Shipments from the state in 1919 were 7,403 cars of which the Exchange handled 5,429 or 73%. This was 10%



less than handled the previous year.

Shipments from the state in 1920 were 6,087 cars of which the Exchange handled 4,553 or 75%. The f.o.b. sales during 1920 were 65%. This is the last report from the Exchange. In practically ten years of existence the Organization has handled the distribution of three-fourths of the peach crop raised in Georgia. It has greatly increased the markets in which the Georgia fruit is sold, and through its agencies around 65% of the Georgia crop is sold f.o.b. The Exchange gets a small percentum from these f.o.b. sales.

Other activities of the Georgia Fruit Exchange consist of having market reports sent to the different peach centers daily. No selling of peaches takes place in any of the main centers of peach production until after the reports of the Exchange have been listed. This report is made public about nine o'clock. It gives a statement of the sale of every car of Georgia fruit anywhere in the United States and the prices obtained. It likewise gives a statement of all cars of Georgia fruit enroute with their destinations. This information gives the grower a knowledge of the value of his product and he is then in position to make a reasonable sale to the buyer. The day's business starts in the peach centers as soon as this report is put up on the bulletin board in the office of the Exchange, the Exchange maintaining an office in every large shipping place. If the grower fails to make an f.o.b. sale, he routes his car to any point that seems desirable to him,

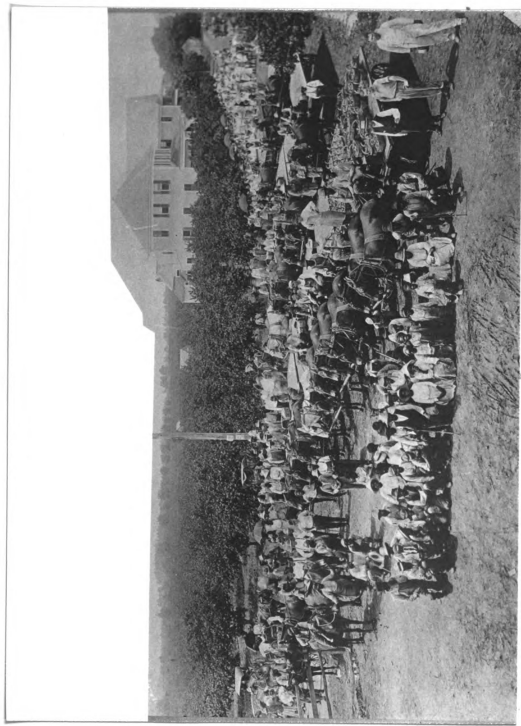
notifies the Exchange the number of the car, its contents and its destination. They then take charge of it and if for any reason the chosen market of the grower does not maintain its strength, the car is diverted by the Exchange and sold elsewhere.

The Exchange has inspectors who are present at the opening and unloading of every car of fruit. It handles all of the claims for its members, no matter against whom they may be. Within recent years it has assisted its members in the purchase of spray materials, machinery, fertilizer and any other orchard material that they need.

The members do not have to be stockholders. The Exchange gets its support by charging a percentage on each crate sold. It has representatives in each market and sells through these representatives, paying them a commission. The commission to the merchant comes out of the commission that the Exchange charges the grower. At the end of the season the Exchange pays all of its debts, pays its stock dividend, which is limited to 10%, and then makes a rebate to the shippers of anything that is left.

The original issuance of stock was \$10,000. This has been increased to \$50,000. To give some idea of the financial dealings of the Exchange I quote from the report of 1920 which says, "The number of outstanding shares of stock are 3,763. The Exchange holds for resale, under a revolving fund constituted for that purpose, thirty-nine shares; there are in the treasury 1198 shares. The closing of the 1920 books shows 413 stockholders. This is a reduction from 445 in 1919. The loss is accounted for by the





NO. 16. PART OF GEORGIA'S PEACH ARMY.

effort of the Exchange to secure the stock of individuals who have retired from the industry". In regard to finances the report says, "The gross income for the year was \$98,675.45. The expenses were \$93,837.09, leaving a net income of \$4,438.36. There were still uncollected by the Exchange at the issuance of the report \$18,000 of commissions due in 1920. These collections were not pressed due to the unfavorable financial conditions. Had these collections been made, a rebate of approximately \$16,000 would have been made to the shippers".

#### THE ECONOMIC STATUS OF THE INDUSTRY

The number of individuals actually engaged in growing peaches in the state of Georgia is estimated between 850 and 900. To give some idea of the size of the Georgia peach industry, I will quote from Mr. B. W. Hunter, who is President of the Georgia Fruit Exchange. This statement is taken from a paper which he presented before the Georgia State Horticultural Society in 1919: "The Georgia peach orchards cover, at a conservative estimate, 140,000 acres of land and number 18,000,000 trees. At a fair valuation these orchards are worth \$42,000,000. The buildings necessary for conducting the business are worth approximately \$7,000,000. The machinery can be considered to be worth \$1,500,000 and the work stock and other accessories at least \$2,100,000. This represents a total value of the Georgia peach industry of \$53,000,000.

"These orchards employ year in and year out about 7,000 men whose wages aggregate \$2,100,000. In years like



1918-19 the wage expense at harvest time will be one-half million dollars, the spraying material bill a million dollars, the fertilizer bill two million dollars and the crate bill over a million dollars, making a total of twelve months period around \$7,000,000.

"A crop of 7,800 cars like in 1918, if harvested in a single day would require 117,600 pickers and helpers and 54,600 packing house employees, an army of 171,600 men. It would require for transportation 312 trains, which if placed end to end would cover the rails for a distance of seventy miles. There would be 1,005,000,000 peaches, ten for every individual in the United States. Transportation companies received for handling the 1918 crop \$2,500,000, the commission men \$1,092,000, the retailers in round numbers \$8,000,000 and the ultimate consumers paid for it not less than \$20,000,000. One day in 1918 Georgia shipped 591 cars or 295,500 crates. In the fields were 15,366 men harvesting the fruit, placing it in crates and loading it in cars. Two hundred men were running the trains which transported it. At least 1,000 wholesalers and retailers were engaged in the final distribution and not less than 1,800,000 purchases took it from the stores and stands."

This gives some idea of the magnitude of the peach industry in Georgia. It has been the making of certain sections of this state. It is on the increase because as the Georgia farmer seeks new crops to take the place of cotton, and as he learns more about the production, grading, packing and distribution of this crop, a greater



number of individuals go into the business. It is going to be one of the salvations in the fight against the boll weevil.

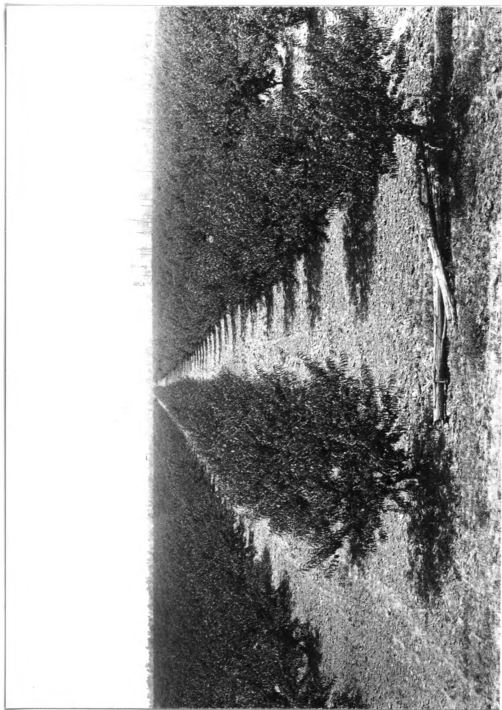
There are of course ups and downs in the industry. The years of 1919-20 will go down in its history as being ones of great trial. The crop of 1918 was large. It was harvested and disposed of at war prices. The growers were prosperous. An Arkansas visitor was standing on a corner in Fort Valley in the spring of 1919 watching the business of that thriving little city. It was just before the beginning of the harvest and the trees were laden with wonderful fruit. He stood and watched sometime, said nothing but looked. After serious contemplation and considerable thought, he turned and remarked, "The peach business is awful on 'Flivers'. I have not seen one go by in a half hour". This is about as graphic a description of the prosperity in the peach region at the end of 1918 and the beginning of 1919 as it is possible to make.

But the season of 1919 did not fulfill the promise of the spring. The rains came and staid. The curculio and brown rot got in their work. The growers sold their fruit f.o.b. in large quantities but it did not carry and the speculators and buyers lost money, and lost heavily. The growers lost, that is they lost their anticipated gains but not the actual cash.

The curtain rolled up on the season of 1920. The buyers had been the heavy losers the year before. They wrote into their contracts that the fruit must carry. The winter had been warm and the rains came again. The growers

dusted and sprayed with speed. Their early fruit went forward fairly well, but their main crop was so full of worms and brown rot that it could hardly get out of Georgia before it was unsalable. During this season the growers lost money, not anticipated money, but the cash.

This is the condition at the beginning of 1921. Everybody connected with the peach industry recognizes that the past two seasons have given the Georgia product a very unsavory reputation on the market, and if this magnificent industry is again to come back into its own, it can only be done through the development and improvement of productive methods and the growing again of a fruit that will carry and hold up on the market. The Georgia peach industry is going through in 1921 the zero hour of its existence. If this season, with its low prices and its debts being carried over from the economic depression of 1920, does not spell SUCCESS to the peach grower, millions of trees will be uprooted to be replanted by - God knows what. There will be some individuals who recognize the possibility of this industry and who will cleave to it as they have done in former times, and possibly within another decade we will see the Georgia peach revived. If this season is a success, then the peach business in Georgia will increase and increase rapidly as there are still hundreds of thousands of acres capable of producing this wonderful fruit in all of its perfection.



No. 17. EASILY WORTH \$300.00 PER ACRE.



## THE ESTIMATED VALUE OF A PEACH TREE

The Georgia Fruit Exchange, to facilitate its members and stockholders in making out their income returns, had an expert accountant investigate the cost of the production of peaches and the value of a peach orchard in Georgia. These figures are probably a little high as they were to be used as an estimate for taxes, nevertheless, they give an exceedingly good idea of the cost of operations in an up-to-date peach venture. The following is part of this report which was presented to the Commissioner of Internal Revenue of the United States of America.

" Cost of Peach Trees at the End of Third Year  
Or in February 1913  
When Planted November 1909 - February 1910.  
Cost Per Acre. 108 Trees Per Acre.

### First Year 1910.

Land Value, \$60 per acre @10%, including taxes	\$8.00
Buildings, \$3,100 for 300 acres @10% per annum	1.00
Harrowing land, double cutting before breaking, four acres per day @ \$5.00	1.25
Breaking land, disc plow and four mules, 1½ acres per day @ \$8.75	5.83
Roads, drainage, terraces, ditches and upkeep	1.00
Harrowing land after breaking three times,	1.88
Marking rows, staking and laying off, 1 mule and 2 men @ \$4.37, four acres per day	1.09
Barring off, middle busting and sub-soiling, four mules,	1.40
Peach trees, 105 @ 4¢	4.32
Setting trees, 108 per day, 1 man and mule and wagon part time	1.50
Fertilizer, 2 lbs. per tree, 216 lbs. @ \$40 per ton	4.32
Distributing fertilizer, men, mules and wagon	.96
Plowing two furrows to trees,	.26
Cultivating 5 times, 4 furrows to trees	2.60
Hoeing twice, 2 single acres per day per man,	1.25
Worming,	1.25
Pruning,	1.00
Whitewashing with fungicide @ 2¢ per tree	2.43
Superintendent, supervises 300 acres. Salary	\$720.00



house, wood and water	\$360.00, meat,	
corn meal, flour, vegetables, chickens,		
eggs, milk and butter	\$480.00, horse and	
feed and care	\$240.00	\$6.00
Breakage, losses, lost time, bad weather and inci-		
dentials, 10% of cost, \$45.34		4.53
Management, direction, horticultural knowledge,		
buying, bookkeeping and office expense		3.00
Interest on investment, \$52.87 @ 8% for 6 months		2.11

Total cost per acre at end of first year \$54.98  
 Cost per tree at end of first year 50.9 cents.

Second Year 1911.

Land value, \$60 per acre @10%, including taxes	\$6.00
Buildings, \$3,100 for 300 acres @ 10% per annum	1.00
Roads, drainage, terraces, ditches and upkeep	1.00
Dead trees, 15% of planting, 16.2 trees @ 50.9¢	8.25
Replants, 16.2 trees @ 4¢	.65
Replants, digging holes and setting trees @ 4¢	.65
Plowing, winter, 1½ acres per day @ \$5.00 per day	3.33
Boree plowing, 4 acres per day @ \$3.00 per day	.75
Plowing dirt back to trees	1.00
Fertilizer, 3 lbs. per tree, 324 lbs. @ \$40 per ton	6.48
Distributing fertilizer, men mules and wagon	1.05
Worming, spring,	1.25
Cultivating 5 times, 4 furrows to tree	2.60
Hoeing twice,	1.25
Pruning,	3.00
Gathering, piling and hauling prunings and burning	2.25
Spraying, material ½ gallon per tree	1.20
Spraying, tank, engine, gas, oil and water supply,	2.40
Spraying, team and 3 men, 10 acres per day @ \$8.50	.85
Worming, winter,	2.50
Superintendent,	6.00
Breakage, losses, lost time, bad weather and inci-	
dentials, 10% of cost \$53.46	5.34
Management, direction, horticultural knowledge,	
buying, bookkeeping and office expense	3.00
Interest on investment, 1st. year \$54.98 @ 8%	4.40
Interest on investment, 2nd. year \$61.80 @ 8%	
for six months	2.47

Total cost per acre for second year \$68.67  
 Cost per tree for second year 63.6 cents.

Third Year 1912.

Land value, \$60 per acre @10% including taxes	\$6.00
Buildings, \$3,100 for 30 acres @ 10% per annum	1.00
Roads, drainage, terraces, ditches and upkeep	1.00
Dead trees, 10 trees @ cost of two previous years	11.45
Replants, 10 trees @ 4¢	.40
Replants, dynamiting, digging holes and setting trees	1.00



Plowing, winter 1½ acres per day @ \$5.00 per day	\$3.33
Boree plowing, 4 acres per day @ \$3.00 per day	.75
Plowing dirt back to trees	1.00
Fertilizer, 4 lbs. per tree, 432 lbs. @ \$40 per ton	8.64
Distributing fertilizer, men, mules and wagon	1.25
Cultivating 5 times, 4 furrows to tree	2.60
Hoeing,	1.25
Pruning	6.00
Gathering, piling, hauling prunings and burning	3.50
Spraying, material one gallon per tree	2.40
Spraying, tank, engine, gas, oil and water supply	2.40
Spraying, team and three men, 8 acres per day @ \$8.50	1.06
Worming	3.24
Superintendent	6.00
Breakage, losses, lost time, bad weather and incidentals, 10% of cost \$64.27	6.43
Management, direction, horticultural knowledge, buying, book-keeping and office expenses	3.00
Interest on investment, 1st. year, \$54.98 @ 8%	4.40
Interest on investment, 2nd. year, \$68.67 @ 8%	5.49
Interest on investment, 3rd. year, \$73.70 @ 8%	2.95
Total cost per acre for third year	\$86.54
Cost per tree for third year,	80.1 cents.

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Total Cost at End of Third Year or in February 1913.

First year cost per acre, \$54.98 per tree, 50.9 cents.	
Second " " " " 68.67 " " 63.6 "	
Third " " " " 86.54 " " 80.1 "	
Total cost in February 1913, per acre	\$210.19 " " \$1.946

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As an illustration of the ability of a Georgia peach orchard to make profits on a large valuation per acre, I submit the following condensed estimate of income and expense for a crop year, under conditions prevailing before the war prices:-

Yield 216 crates selling @ \$1.00 f.o.b.	\$216.00
Deduct:-	
Upkeep of orchard	\$60.00
Picking and packing fruit @ 25¢	54.00
Commission on sales @ .03¢	6.48
Depletion @ 30¢ per tree	32.40
	152.88

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Profit per acre equal to 19½% on \$324.00 \$63.12  
 From this profit would have to be deducted overhead and general expenses, and abnormal losses."

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FINIS.

[illegible]

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Age Group	Percentage of Respondents
18-29	85%
30-49	80%
50-69	75%
70+	70%

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