

## PLANT GROWING AS A SPECIALTY.

The growing of bedding and ornamental plants as a specialty is a field which is comparatively limited. The great improvement in transportation facilities has made it practicable to ship plants long distances; hence these plants are now turned out very cheaply and by the million in large establishments remote from the points where they are to be sold. Such being the case, the opportunities for the small specialist are few and are growing fewer. If the field is entered at all, it should be considered mainly from the standpoint of getting into touch with some already existing large establishment with a view to obtaining experience and with the ultimate view of pushing the business to such a point that large shipping facilities may be developed.

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## II. FRUIT GROWING.

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### INTRODUCTION.

Fruit growing in early days in this country was largely incidental to general farming. Orchards were planted by farmers whose main business was the growing of grains and cereals, live stock, poultry, etc. In recent years the business of fruit growing has gradually become a specialty. The work has been taken up by fruit men who are specialists in this line and who devote their entire energy to the growing of fruits. Among fruit growers are specialists who grow only one sort or one type of fruit, as, for instance, peaches, pears, apples, grapes, small fruits, etc. The reason for this is largely the demands of intensive methods. Intensive fruit growing requires that everything shall be done for the tree or vine that it will pay to do. The object of the intensive fruit grower is to grow the greatest amount of salable commercial fruit per acre, of the best quality which can be grown with profit. To accomplish this result pruning, spraying, and cultivating must be carefully studied and practiced, and the fruit after it is grown must be properly picked and packed and marketed to the best advantage. The successful fruit grower must be ready to utilize at all times the results of scientific investigation in agriculture. One of the most hopeful things in the recent progress of agriculture and horticulture is the utilization of scientific discoveries in practical work. The investigations of the Department of Agriculture and of the experiment stations and agricultural colleges have in no small degree contributed to this progress and to this differentiation into specialties.

## REQUIREMENTS OF THE SUCCESSFUL FRUIT GROWER.

The successful fruit grower, in the first place, must be a good general farmer; he must understand all about teams, the use of tools, plows, and harrows, and the methods of preparing land, seeding, and cultivating. He should have some knowledge of chemistry, so as to know how to buy and mix his fertilizers and study the chemical needs of his crops. Knowledge of plant pathology and physiology is essential, and he must keep fully abreast with the latest methods of defending his plants against disease. He must also be enough of an entomologist to know every bug or insect which commonly attacks his crops. He should know fruits and fruit trees thoroughly, at least all the species which he grows; he must be familiar with the merits and defects of old varieties and be quick to discover the value of new ones. He must read everything published about his favorite fruit, and be prepared to sift the useful information from that which is not applicable to his local conditions. He must also be a good business man in order to buy his supplies to the best advantage and market his crops with profit. Many fruit growers have failed on account of weakness in this latter point, being unable to successfully market their fruits after they have grown them.

## INTENSIVE FRUIT GROWING ESPECIALLY ADAPTED TO SMALL FARMS.

The fruit grower on a small place has certain advantages over the man who attempts to work a large area. There are several reasons for this. Most men are not able to give to more than a limited area the personal attention which is one of the great factors in success with trees and plants. Where large areas are planted much of the work must be delegated to subordinates, who usually are not equal to the owner in their attainments. With a small place under the immediate eye of the owner the various operations of pruning, cultivating, spraying, etc., may be done well and done in time. In the matter of spraying, for instance, the delay of a week may make all the difference between success and failure in preventing injuries by codling moth, apple scab, pear-leaf blight, and various other fungous diseases and insect pests of fruit trees. In the matter of cultivation, not infrequently a difference of three days, especially if an inopportune rain should come, may result in such a growth of weeds that the tools will not destroy them, and they may gain such a start as to make it unprofitable to pull them by hand, while if they are not destroyed the crop will be a failure.

The tendency of modern fruit growing, especially modern fruit marketing, is to produce sufficient quantities for carload shipments. From many localities the carload is the unit of shipment. This almost necessarily has driven men into planting on a large scale. In Georgia, Texas, and other Southern States the refrigerator carload of peaches

is the main factor of commercial success of the industry. There is no doubt a great advantage in marketing fruit, especially peaches and apples, in carload lots, and certainly the manager of a large place deserves credit for the organization and planning necessary to grow and market fruit on this scale with even a fair degree of success. He can, however, hardly hope to compete in yield per acre and refinement of methods with the fruit grower on a farm of, say, 100 acres or less. Moreover, it is not rare to find these small farmers doing a big business. There are fruit farms of less than 100 acres in several of our fruit growing sections where a business of \$12,000 to \$15,000 annually is carried on. These "big little farms" are really the most interesting studies in horticulture. Intensive methods are the secret of their success.

Fruit growing has always been more or less high-class farming. It has been largely undertaken by bright and observing men, who as a rule are more interested in their profession than the ordinary farmer. This does not mean that there are not capable and even brilliant men engaged in plain farming and stock raising; still, as a rule, the men who take up fruit growing as their specialty are above the average in energy and intelligence. There were some very bright and scholarly minds in the old school of horticulturists. Such men as Hovey, Manning, Wilder, the two Downings, Elwanger and Barry, and P. J. Berckmans are a credit to any profession. Few of these men grew large quantities of fruit as we estimate to-day, but they laid the foundations for modern American horticulture and gave a great impetus to fruit growing in its early days.

#### INTENSIVE FARMING CONTRASTED WITH EXTENSIVE FARMING.

The usual aim of the fruit grower as well as the farmer is to produce large quantities of salable produce with the least amount of labor and invested capital. In many cases, especially in opening up new countries, extensive methods were probably the most profitable at the outset. In extensive farming nature is depended on to do the greater part; man does comparatively little. In intensive methods the opposite is attempted; nature is assisted in every possible way and encouraged to do her utmost, the aim being the production of the largest quantities and of the finest quality per acre. As year after year the country becomes more thickly settled, land becomes scarcer and more valuable, and intensive methods must gain prominence. Even now we hear certain individuals criticized for attempting to farm too much land—more than they can handle profitably.

There is a good lesson in the story of the Pennsylvania farmer with a 400-acre farm who, after selling off 100 acres, found, by giving a little better attention to the remaining 300 acres, that his sales were

in no wise diminished; later, after selling off 200 acres more, and concentrating all his energies on his remaining 100-acre farm, he made it produce as much as did the original 400 acres. The writer knows of a number of instances where 100-acre farms devoted to fruit culture far exceed in production other fruit farms of 400 acres advantageously located.

#### POOR LAND NOT AN OBSTACLE TO INTENSIVE FARMING.

While poor soil is a great obstacle to profitable farming on extensive methods, where the land is plowed, harrowed, and planted and depended upon to produce the crop without high culture and without manures, yet with intensive farming, especially intensive fruit growing, so many things are done for the soil and for the plants that the original fertility of the soil is not so important a factor. Good soil is, of course, a great advantage for any one engaged in farming or horticulture, but convenient markets, adaptability to special crops, and other favorable conditions may often overbalance soil fertility with the high manuring and fertilizing possible in intensive farming. This should be especially encouraging to the eastern farmer whose soils are as a rule far less fertile than those of the Mississippi Valley or the far West.

#### INTENSIVE METHODS IN FRUIT GROWING.

Some of the details of the methods used in intensive fruit growing will now be considered.

#### WHAT TO PLANT.

Assuming that a fairly good location, all things considered, is available, one of the most important matters is the selection of suitable kinds or varieties of fruits. Where there are growers in the same section already engaged in the business, one should by all means study closely their mistakes and successes and endeavor to select varieties and species that succeed, for no amount of care can ever fully counteract the lack of adaptability to soil and climate so prominent with many varieties of fruits. Mistakes in planting the wrong kinds should be corrected as quickly as discovered. One of the earmarks of intensive methods in horticulture is the prompt pulling out of orchards which are a failure. Careless growers will continue blocks of trees year after year, even though they acknowledge that their planting was a mistake. The small crops obtained annually keep leading them on to spare the trees, although no profit is derived. Unprofitable trees should be either top worked to some profitable kind, if this is feasible, as with pears and apples, and even sometimes with peaches and plums; or else they should be promptly pulled out and something found to take their places.

## THOROUGH PREPARATION OF THE LAND.

The thorough preparation of the land is a very important process in planting out orchards and small fruits. Frequently fruit growers are in such a hurry to plant that they are obliged against their better judgment to set out trees on ground unfitted by tillage for their reception. Trees to do their best need to have the land in a high state of culture when they are planted. It is wise, where practicable, to anticipate planting by two or three years and practice a rotation of crops which will bring the soil into perfect condition. Deep plowing can not be done in the orchard, but is by all means to be advised in the years preceding planting. The turning under of green manures and the growing of hoed crops is advisable. On rich land or new land which needs subduing, corn is a very good crop to plant. It is the best index crop known for bringing out the inequalities of the land. It will show the poor spots that need extra manure and frequently will develop the wet areas which need drainage. Cotton also answers fairly well for this purpose in the South. The best thing, however, to immediately precede the planting is some crop like Irish potatoes, sweet potatoes, or garden vegetables of some kind. Such crops bring the soil into practically a garden condition, for with them deep plowing, high manuring and fertilizing, and thorough cultivation are commonly practiced.

Subsoiling is to be highly recommended on all lands which are underlaid by a more or less stiff clay subsoil. This should be done when necessary in the fall, immediately preceding the planting of the trees. Perhaps the best way is to subsoil the strip 6 to 8 feet wide on which the trees are to be planted. Then the following fall subsoil a strip 3 or 4 feet wide on each side of this strip, and continue this annually until the center is reached. Subsoiling is particularly important, for the reason that it opens up stiff clay subsoils to the passage of the roots and deeply stirs the land in a manner which can never be done after the roots occupy the soil. However, cowpeas and clover in the orchard can produce a somewhat similar effect. One of the features of intensive horticulture is to give the trees or plants good care at the start and then to keep it up continuously.

A perennial plant, such as a tree, takes several years to recover from neglect or shock, but, if a young tree is vigorous when set out, carefully planted so as to make a fair growth the first year, and then pushed right along, it will attain a vigor and perfection not otherwise obtainable. Right here, however, a caution is necessary. The matter can be overdone. Young peach orchards especially can be pushed into such vigorous growth that they will not only "throw" their fruit, but are made tender and are easily winterkilled. In other words, vegetative vigor is so pronounced that their fruiting tendency is not

properly encouraged. The writer has seen apple orchards 15 years old, vigorous, handsome trees, and yet not in full bearing. Such trees need a moderate setback, such as may be produced by putting the land in clover for a year or two, to check them up and bring them into bearing. Once in bearing the high culture may be renewed.

#### THOROUGH CULTIVATION.

Tillage is the basis of all success in horticulture as well as in general agriculture—good plowing, turning over the land when it is in a satisfactory crumbly condition, not so wet as to become pasty and harden into clods, nor so dry that it will not pulverize before the plow. The skillful use of the proper type of harrow is one of the most important operations on the farm. Harrows are now made in such a great variety of styles and types that it is almost bewildering to the farmer. Nearly every one of these types has its special uses, for which it is superior to all others. The skillful farmer must keep on hand the more important types adapted to his soil, and use good judgment in sending them out to the field.

There is a great variation in the amount of culture which is deemed sufficient in the orchards of different sections of the country. One man expressed surprise that an orchard should ever have to be harrowed more than three or four times, thinking that this was the limit of necessary or desirable cultivation, and yet there are orchards which have been harrowed thirty, and even (counting the use of the weeder) fifty times in a year. However, as a general rule, if the harrowings are done at the right time, as soon as the land comes into condition after each rain, a dozen to fifteen harrowings or cultivations are about all that is necessary for complete success in growing fruit trees. Usually, however, to secure maximum results, peach orchards need to be harrowed or cultivated about once a week from blossoming time until midsummer.

#### GROWING OTHER CROPS IN THE ORCHARD.

Cover crops or green manures should be sown at the close of cultivation, utilizing nature thereby to grow organic manure or fertilizer in place in the soil. Some horticulturists of distinction tell us never to grow other crops in the orchard, even during the first years. The writer's opinion is that it is advisable to grow crops in the orchard during its early life, say from two to three years in the peach orchard, and four to five years, perhaps, in an apple and pear orchard. However, these crops should be in the nature of nurse crops, that is, crops which can be grown with profit and yet, on account of the culture

and fertilizing or manuring, will result in an improvement of the soil and a benefit to the orchard. Where moisture is sufficient, if large quantities of manure and fertilizer are used on crops like potatoes, sweet potatoes, sugar beets, tobacco, cabbages, beans, etc., the orchard soil may be built up and a large residual effect of manure and fertilizer obtained, which will sustain the orchard for years afterwards. The experiments at Rothamsted showed the beneficial effects of stable manure to extend over a period of twenty years. This may be followed in the later years by cover crops which keep up the supply of humus in the soil. The only difficulty with the nurse crops, and perhaps sometimes with the cover crops, is in semiarid regions, where orchards are grown without irrigation, or during a dry summer in the Eastern States, where there is not enough moisture for both the trees and the crops.

#### FERTILIZING.

There is an enormous difference between the quantity of fertilizer used by different orchardists in the same region. A bearing peach orchard in sections where fertilizers are used with profit on truck crops can often be maintained satisfactorily on 400 or 500 pounds per acre, costing, say, from \$20 to \$30 per ton. Some orchardists consider this quantity abundant; and yet it is not rare to find a thousand pounds or even more applied to some of the thriftiest orchards. As far as the writer's experience goes, the men who are making the most money are the ones who are using the greatest amount of fertilizers. Stable manure, where it is readily obtainable, is perhaps the most universally effective material for making plants grow; yet, in the orchard, this has to be used with caution. Young pear trees pushed too vigorously with stable manure are particularly subject to blight. This is true of apples and quinces to a less extent. Young peach orchards pushed too vigorously with stable manure are more subject to the peach-rot fungus, and in the far North they may be forced into a tender, late growth, which will not withstand the severe cold of winter. On the other hand, trees on light soils, especially if suffering with root aphid or other similar root troubles, can be benefited more by stable manure than by any other fertilizer. Manure is a specific for the black peach-root aphid.

#### FIGHTING DISEASES.

The skillful fruit grower watches his trees and plants almost daily. In fact he treasures up his experience of year after year and knows exactly when to anticipate attacks of many of the worst diseases and insect pests, and regularly prepares for them in advance. Spraying with the lime-sulphur-salt remedy in winter or early spring is now becoming very common with successful fruit growers. This is the best-known all-round fungicide and insecticide for dormant trees,

disinfecting the twigs, branches, and buds from the curl-leaf fungus of the peach, killing many *Monilia* spores on peaches and plums, doubtless rendering the branches impervious to the attacks of surface-growing and canker fungi, besides killing the San Jose scale, *Phytoptus* mites, aphid eggs, and other insect pests. The use of Bordeaux mixture, especially when combined with an arsenical poison, like the arsenate of lead or Paris green, is one of the important operations of pomaceous fruit growing. The details of this spraying can not be attempted here, but suffice it to say that the fruit grower must have a knowledge of all his suspected enemies and know how to meet them. Borers may be fought by digging away the soil from the collar of the tree and taking them out with a knife or a piece of wire. Pear blight must be fought by thoroughly cutting out the disease, first during the summer or the growing season, but mainly during late fall, winter, or early spring, when the trees are dormant. In this work a disinfecting solution should be used to keep the knife or saw free from contamination and to wash over the wounds to prevent the disease from reentering the cut surfaces.

#### PRUNING AND THINNING.

No one operation stands out more prominently as the work of intensive horticulture than pruning. To secure maximum results in fruit growing the trees should be pruned skillfully. The young tree must be trained into the form desired. The older tree must be kept in control by pruning. Our own preference as to the style of tree with peaches, plums, apples, and pears is the vase form, because of its numerous advantages in fighting disease, especially pear blight. Each species and variety requires more or less special study to lead it into the form most desired. As a general rule, the annual growth of the trees should be headed back to some definite length, say 14, 16, to 20 inches, regardless of the length of the top growth beyond this. However, the general vigor and future possibilities have to be kept in mind. This heading-back process will result in the pushing out of a great many twigs, making the top too thick in future years. This objection is to be met by annually thinning out first the one-year twigs, and then later, perhaps with the saw, those of the larger branches, which have not room to develop. A tree so laden with fruit that its branches are drooping to the ground may be an attractive sight; but this is not good horticulture. Partly through pruning, and more especially by thinning the fruit, the tree should never be allowed to overload itself so that it breaks down under the weight of the fruit, or even permanently bends its main branches very far from their normal position. Thinning is one of the necessary operations of any high-class fruit culture. It has been demonstrated both by careful experimenting and by practical experience to be a profitable process.



## PICKING AND MARKETING.

Having grown the fruit, the next and most important part is the picking and marketing. When fine fruit has been grown up to the picking season the battle has been half won, but it has been only half won. The business side of fruit growing then begins. Markets have to be looked up, perhaps in several different parts of the country, and the telegraph and the telephone must frequently be used as the fruit attains maturity. The packages—crates, baskets, or barrels—have to be purchased and made ready for the reception of the fruit. Everything which can be done should be done to lighten the task on the picking days and to distribute the labor. This is especially true in handling perishable fruits, such as peaches, plums, and early pears. Many sorts of fruit require picking on a certain day. With peaches, they may be green one day, matured, full colored, and ready to ship on the next, and possibly too ripe and soft on the third day to be profitably handled for long-distance shipments. All this means that the grower must be ready and waiting for the fruit to mature. A well-ordered packing house that has facilities for handling, grading, and packing the fruit is a very important adjunct to every fruit farm. In fact, aside from the business office, it may be regarded as the central point of the industry on that place.

No one thing, perhaps, has more effect on the output of a fruit farm than the manner in which the fruit is graded and packed. It has been remarked that it requires an artist to select fancy exhibition fruit for the World's Fair, but this statement may be extended. It requires an artist to grade and pack fancy fruit. There are few people who really can do it, or at least few who do it. Of course, all the fruit can not be grown as fancy, and two, or sometimes three or more, grades are frequently shipped—all good marketable fruit. Near-by points can sometimes be utilized in shipping off that which is too ripe to carry long distances. Culls, bruised specimens, and wormy fruit should always be kept out of the standard grade, but they can often be utilized for canning, evaporating, making into cider, jellies, etc. At any rate, nearly all the fruit has a place somewhere, and it is the duty of the marketer to sort his fruit and put every grade in its place.

## OPPORTUNITIES IN INTENSIVE FRUIT GROWING.

Naturally, in discussing the subject of intensive fruit growing the splendid opportunities on the Pacific coast—in California, Washington, and Oregon—come to one's mind. The possibilities of success have been so great, however, that many of the best locations have already been utilized and the business is highly developed. Unfortunately, the great distance from market furnishes an obstacle to profitable orcharding which at least partly offsets the natural advantages. In

Colorado, on the western slope of the Rocky Mountains, as well as in adjacent parts of Utah and New Mexico, fine opportunities await the energetic and skillful orchardist. Young orchards are being planted out at a rapid rate, and the product is, as a rule, of the highest commercial quality. The wax-like apples produced in this region, neatly packed in bushel boxes, attract buyers from nearly all the Eastern States, who paid last season prices ranging from 50 cents to over \$1 a bushel for this fruit delivered at the railway stations. The future development of the apple industry in this region seems almost unlimited. Peach growing in the western Rocky Mountains is especially successful, and the output is increasing rapidly. Some of the very best sections are just now being extensively opened, and a good deal of fruit land just being brought under irrigation can be purchased at moderate prices. However, the success of this industry has caused the value of the orchard lands in convenient locations to rise to a point that astonishes the eastern visitor. Some of the finest apple orchards are valued at over \$1,000 per acre.

Around most cities from the Mississippi Valley eastward there are localities naturally fairly well adapted to the growth of tree fruits. Every city of 5,000 inhabitants or more constitutes a fair market for at least one moderate-sized fruit farm. The larger cities of 25,000 people and upward, of course, offer the most attractive localities. A well-planned orchard, better still if accompanied by a plantation of small fruits and berries, can be made extremely profitable by catering to the local demand. As a rule, if the fruit is grown in large quantities it is better to sell it to greengrocers and dealers, but where the grower is prepared greater returns can, of course, be secured by marketing in a retail way.

Particularly fine opportunities for growing fruit for the local markets occur in New England. In the rush to make money out of manufacturing and trade, a large proportion of the capable young men in New England desert the farms. There are at the present time as good opportunities for brains, energy, and capacity for work to reap their reward in peach growing on some of the Connecticut hills as anywhere in the country. Frequently beautiful unused orchard sites overlook manufacturing towns having a population of from 20,000 to 40,000 people. Since the scourge of pear blight has now spread across our country to the Gulf on the south and to the Pacific Ocean on the west, we are prepared to look around and decide which region has the least trouble from this serious pest. New England and the Lake Region suffer less from pear blight than any other sections of the country in which pears can be successfully grown. A well-managed pear orchard in the vicinity of Boston, or at some other convenient point in southern New England or certain sections of New York State, and perhaps Ohio and Michigan, would be more likely to succeed than in any other part of the Union.

The largest area of undeveloped fruit country in the United States is the Allegheny Mountain region. In Maryland, Virginia, West Virginia, and North Carolina—in other words, the central Allegheny section—there is one of the finest horticultural regions in the country. By far the larger part of this is totally undeveloped. Mile after mile of beautiful mountain slopes in West Virginia are totally unoccupied by fruit plantations. This region not only has a fertile soil suitable to tree growth of all kinds, but it grows bright-colored, highly flavored fruits, especially peaches and apples, of excellent shipping qualities. They nearly always sell, when well grown, for the very highest market prices. Choice dessert apples like Grimes Golden, Rome Beauty, Winesap, Northern Spy, and, in the higher altitudes, Spitzenberg, grow readily in this region. It extends northward well into Pennsylvania and southward, as far as peaches are concerned, into north Georgia and Alabama. The mountains of North Carolina are the southern limit of good apple culture in the East. A certain section of Virginia, within this region, grows to perfection the famous Newtown Pippin, which is marketed under the name of Albemarle Pippin, the most exacting in its requirements of soil and climate of all commercial apples. Much of this land is very rough and rocky, although the soil is fertile and highly adapted to tree fruits. The stone fruits (peaches, Japanese plums, and cherries), as well as apples, pears, and quinces, thrive in this section.

In the lowlands along the coast tree fruits do not do so well south of Maryland. From Maryland northward fine peach orchards have been developed in the tidewater region. However, the growing of strawberries, cantaloupes, and early garden truck can be made very profitable from Florida all the way up to New Jersey if the right man takes hold of the work. The location of these early truck farms should be determined by nearness to market or to transportation lines, earliness of location, and protection from spring frosts. There is a succession of these products marketed through the spring and summer, beginning in Florida and following successively up the coast to New York or even farther north. A similar condition of affairs exists in the Mississippi Valley, beginning at the Gulf coast and extending through Mississippi and Louisiana to southern Illinois, and ending in northern Wisconsin and Michigan.

#### COST OF ESTABLISHING AN ORCHARD.

On the average, it costs about \$100 per acre to plant an orchard and care for it up to five years of age. This estimate does not include the cost of the land nor the residence and main buildings of the farm. It is based on an average of 100 trees per acre, the trees to cost 10 to 15 cents each, labor at \$1 per day, foreman at \$2 per day, man and team estimated at \$3 per day. It would include a reasonable amount

of farm equipment and, with a large acreage, certain accessory buildings necessary for the business. A 100-acre orchard, therefore, would have cost, when five years of age, \$10,000, and the trees would have cost \$1 each. With peaches, plums, and, to some extent, with early-bearing pears this would bring the orchard into fruiting. On the other hand, apples and the later-fruiting varieties of pears would not be in profitable bearing, and probably would not be producing fruit at all. The prospective planter should keep these figures in mind, and should not undertake extensive plantings which are to be cared for properly without planning to have this amount of money available, unless he has studied the local conditions and knows pretty thoroughly that this cost can be reduced. In Georgia, with peach trees costing from 2 to 3 cents, 50-cent labor, and other things in proportion, the cost of bringing peach orchards into bearing is commonly about one-half the above estimate, namely, \$50 per acre. Frequently a man with a small farm can plant out an orchard of 10 to 20 acres, care for it himself, purchase the trees at a moderate price, and, not counting his own labor, bring the orchard into fruiting for apparently no cost at all aside from the initial cost of the trees. In this case, however, the farmer's labor has been the capital invested.

On the other hand, in the Northern States, such as New York and Michigan, and in many districts of the West, this estimate of \$100 an acre would be insufficient, on account of the high price of labor, cost of the trees, and amount of work required to fit the land and plant the orchard. The planting of nurse crops brings in a factor which makes it difficult to estimate the cost of an orchard, for two separate lines of business are thus carried on. The nurse crop may be, when fully successful, so profitable as to pay the entire expense of the care of the orchard and not infrequently leave a margin of profit besides.

The Georgia cotton growers have perhaps been able to grow the cheapest orchards in the country. Peach trees are planted out in the cotton land, and the ground is cultivated in cotton for two or three years, the trees being given scarcely any care aside from the cultivation of the cotton. Perhaps a little fertilizer and a dollar or two per acre in pruning would be the entire expense for care of the orchard up to 3 years of age. Of course certain orchards more carefully pruned and thoroughly sprayed involve greater expense. In Illinois, Missouri, and other Mississippi Valley States practically the same thing has been done with corn. The profits of the corn growing have made the care of the orchard practically cost nothing to the grower. These nurse crops and other crops grown in the orchard, therefore, complicate the question of cost and make it extremely difficult to estimate accurately the absolute cost of the orchard.

The above figures will be criticized by some orchardists, and it is not intended to say that orchards can not be grown at much less cost.