

Management of Horticulture

H. P. Stuckey

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by
H.P. Stuckey



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**DEDICATED
TO THE
FARMERS OF TOMORROW**

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PREFACE

Horticulture is a phase of farming which has been increasing in importance over a long period of years. An analysis of the nation's agriculture over a period of fifty years shows a marked decline in the relative importance of cotton, swine, and some of the field crops including wheat. During this same period there has been an outstanding gain in both vegetable and fruit production. This trend will continue.

The southern states are famous for their horticultural products. A large portion of the nation's fruits and vegetables come from the South; this is especially true of the crops which are grown during the winter months and those which can be produced in the early spring. In addition, the South is known for its apples, peaches, pecans, figs, watermelons, and berries. To bring our farming systems into better adjustment with market demands, the production of horticultural crops must continue to increase. And, in addition to selling the fresh products as has been so largely true in the past, processing establishments for the canning and freezing of these products will increase until this method of marketing becomes far more important than at the present time. Young men seeking to prepare themselves for successful agricultural careers should take all of these things into consideration.

This new text is very timely. It will contribute to the nation's food supply in a period of emergency when added fruit and vegetable crops are in great demand. But the demand for fruits and vegetables will remain at a high level after the emergency is over. We have never produced—on all farms—enough of these foods to

provide an adequate diet for the members of the farm family. As we become more nutrition conscious, this lack will be appreciated to an ever-increasing extent. We must have adequate gardens on all farms; we must have more fruit on a home orchard basis.

In using this book as a text it is not necessary to begin at any given point. Emphasis should be placed upon those enterprises which are practical for the locality in which the book is used. The text has been developed along the lines of the "jobs" involved in each production enterprise. References, and suggestions for work activities, are given at the end of the concluding chapter dealing with each enterprise.

Dr. H. P. Stuckey, the author, is an eminent horticulturist who has devoted his life to the study and production of the crops about which he writes. In 1926, with C. D. Matthews, he prepared the textbook *Horticulture* which has been widely used by teachers and students of vocational agriculture. In the preparation of *Southern Horticulture* Dr. Stuckey has been assisted by the members of the staff of the Georgia Experiment Station. He wishes to acknowledge this assistance and express specific appreciation to Dr. J. G. Woodroof, food technologist; Drs. H. L. Cochran, F. F. Cowart, and E. F. Savage, associate horticulturists; Dr. L. C. Olson, associate agronomist; T. L. Bissell, entomologist; J. G. Futral, assistant agronomist; Miss Edith Slights, Statistical Clerk; and Mrs. Edna Howard Olson, librarian. Mrs. Kathryn Gaines Cooley assisted in the preparation of the manuscript and in reading proof.

PAUL W. CHAPMAN, *Editor*

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CHAPTER I

PEACHES—SELECTING THE LAND

Job 1—Selecting the Land for a Peach Orchard

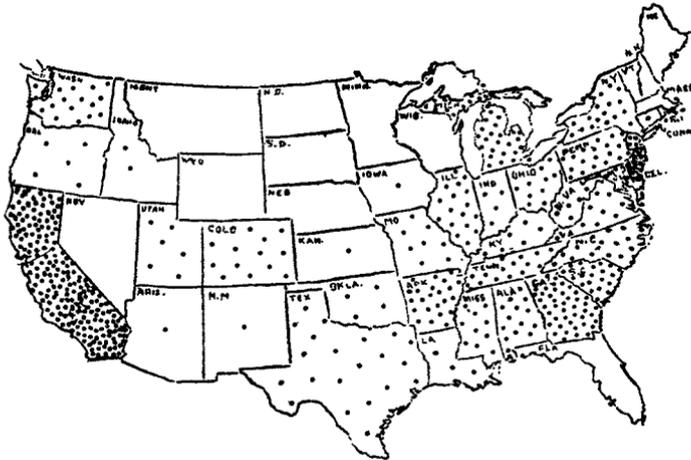
Peach growing is a business distinct from general farming. Before starting into the peach business there are three questions the prospective grower has to consider. First, is he in a region adapted to peach growing? Second, is his land adapted to peach growing? Third, has he the capital and can he give the time and attention necessary to raise a profitable crop? If he can answer these questions affirmatively then he is on the road to success in his venture.

The Distribution of the Peach.—In determining whether or not any particular region is adapted to peach growing it is well to begin by considering where peaches are grown. Today there are only two states, North Dakota and Minnesota, in the United States in which some peach trees are not found. Georgia leads with 8,587,681 trees and California is a close second with 8,335,502 trees. The orchards are on a commercial basis in approximately 35 states, while in at least 25 the number of orchards is sufficient to be an important factor in the state's agriculture.

The South is generally recognized as the peach section of the country and on many farms peaches have supplanted cotton as the money crop. The following table shows the total number of peach trees reported by the Census of Agriculture for 1940 in the various southern states:

<i>State</i>	<i>Total Number of Peach Trees</i>
Alabama	2,240,727
Arkansas	4,612,888
Florida	192,188
Georgia	8,587,681
Kentucky	1,609,819
Louisiana	668,276
Mississippi	1,433,887
North Carolina	3,610,385
Oklahoma	1,314,380
South Carolina	2,608,308
Tennessee	2,434,113
Texas	5,303,837
Virginia	2,054,921

While this table shows the number of peach trees found in the southern states, it does not show the relative adaptability of the different states to peach growing. In each of these states there are thousands of acres of



PEACH PRODUCTION IN THE UNITED STATES
Each dot represents 100,000 bushels.

undeveloped land equally as suitable to peaches as those lands now growing this crop. In recent years the prices received by the growers have not warranted a general increase in the acreage devoted to peaches.

Regions Not Adapted to Peaches.—Temperature at the different seasons of the year is a vital factor in the determination of the adaptability of any given region for peach growing. Regions that have grown peaches successfully for a period of ten or more years may be considered adaptable to this fruit as far as the climate is concerned. Regions that have been found unsafe for commercial peach growing are those in which protracted warm periods occur during the winter and those in which temperatures of well below 0° F. are of common occurrence. Frequently both the fruit buds and the peach trees are injured more severely from cold in the extreme southern border of the commercial peach growing territory, along the Atlantic and Gulf Coastal Plains where the climate is normally very mild, than in the upper Piedmont and mountainous regions where the winter temperatures are normally much lower. This is easily understood when the warm periods of weather often occurring in the Coastal Plains during the winter are considered. At this time growth will start to the extent of swelling the fruit buds and starting some cell activity beneath the bark in the cambium layer. The succeeding cold, even though rather slight, will be very likely to injure the tree in this tender state.

Regions in which severe spring frosts occur year after year in blossoming time are not suited for commercial peach growing. Those sections with very little altitude and rather level lands ordinarily have climatic conditions which cause the peach trees to blossom very early in the spring. Peach trees in blossom will stand a light

frost but not a heavy freeze. If it is found that the average date of the last winter or spring freeze comes after the blossoming period of the peach trees of that section, the region is not adapted to commercial peach growing.

Influence of Bodies of Water.—Land located near large and deep bodies of water has a decided advantage for peach growing. The ameliorating influence of the water largely prevents frost injury to the peaches. A body of deep water absorbs much heat during the summer, cools off more slowly in the fall than the surrounding atmosphere, and so tends to maintain an even, equable temperature during the colder parts of the year. In a like manner, water warms more slowly than the surrounding atmosphere in the early spring and tends to hold down the temperature. This delays the blooming of the trees and enables the blossoms to escape late frosts. The region around such a body of water is very likely to be climatically adapted to peaches even though the region as a whole is subject to severe spring frosts and rapid changes of temperature. In such a region elevation is of less importance because of the influence of the water on the temperature of the adjacent land.

The Adaptability of a Particular Farm to Peach Growing.—Transportation facilities, the slope and elevation of the land, and the type of soil are mainly questions of the adaptability of a particular farm rather than a region to the commercial growing of peaches.

Transportation.—How far is the land from the shipping station? This should be the first problem considered by the prospective peach grower. The peach, unlike cotton and corn, is a perishable crop. It must reach the market in good condition for satisfactory sale

Formerly, four or five miles was considered the maximum distance for hauling peaches from the orchard to the shipping station, but with the building of hard-surfaced roads and the improvement in the methods of hauling, greater distances can now be covered with reasonable safety to the fruit. But it must be borne in mind that the expense of hauling any great distance cuts down the profits. Land that is near competing transportation companies is very desirable for peach orchards, as the service is likely to be better.

If the orchard is on the main line of the railroad, distance from the markets is not such an important matter. By using refrigerator cars and shipping the peaches in carlots the fruit can be delivered in good condition to the large centers of population in almost any part of the country. No commercial grower can afford to depend upon the nearby markets alone for the sale of his crop.

Elevation.—Peach orchards should not be located in valleys or on low-lying lands. Hillsides and narrow plateaus bordered by rather deep valleys should be selected where possible. Table lands or any area elevated considerably above surrounding lands is to be preferred for it affords what is called *air drainage*. Cold air, being heavier than warm air, will drain from such areas to the valleys below. This is especially important in regions subject to late frosts, for after a late drop in temperature it has been found that the fruit buds on the elevated areas are unhurt, while those in the adjacent lowlands have been severely injured by the cold air drained from the elevated region. There may be some apparent exceptions to this rule from the fact the orchards located on greatly elevated areas where they are exposed to the prevailing winds will be injured from the extremely low temperatures that occur in such

places, while those trees that are below the crest of the ridge are protected from the cold winds and yet receive sufficient air drainage for protection against ordinary spring frosts.

The elevation of the orchard above the immediately surrounding land is of more importance than the eleva-



PEACH ORCHARD PLANTED ON THE CONTOUR

tion above sea level. This is due to the fact that areas greatly elevated above sea level may lack adjacent lowlands to receive the air drainage from the orchard.

Very steep and badly broken hillsides should be avoided. Generally such soils will erode beyond control and the inconveniences and expense in carrying on the necessary orchard operations are excessive.

Slope.—Shall I plant my trees on land that slopes toward the north or toward the south? This is a question often asked by the prospective peach grower. No

one slope seems to be generally better than another. In regions subject to very low temperatures and strong winds there is some advantage in locating the orchard on a slope away from the prevailing winds. In sections where winter sunscald is a serious problem, southern



WELL CULTIVATED PEACH ORCHARD

and southwestern slopes are to be avoided and northern or northeastern slopes given preference. If the region is subject to late spring frosts which commonly occur after the peach trees blossom, there will be some advantage in placing the orchard on the northern slope for it will tend to retard the blooming date of the trees. The question of slope is of much less importance than several other factors in the proper location of a peach orchard.

Soil Adaptation.—The peach is adapted to a very wide range of soils. A fertile, well-drained, sandy loam or sandy clay loam with a clay subsoil is preferable for peaches. However, profitable commercial orchards are found on some of the heavy clay loams and clay soils.

On flat, poorly drained land the roots of peach trees are quite restricted to the upper layers of soil and the trees suffer greatly during periods of drought. Orchards on such land are short-lived and unproductive. The sandy soils may be used if heavily fertilized, but they do not retain moisture well during periods of dry weather, and the soluble plant food leaches out rapidly following excessive rains. In addition, sandy soils afford favorable conditions for the spread of the root-knot nematode which attacks the roots of peach trees.

The Peach Grower Must Become a Specialist.—

After the prospective peach grower has determined that the region is adapted to peach growing and that his farm is suited to this particular enterprise, he has yet to consider the labor and capital required to make a success.

The man who engages in peach growing on a commercial scale must be a specialist. This means that after his orchard comes into bearing he must confine his efforts largely to this one crop. Growers who have attempted large acreages in cotton or tobacco, together with peaches, find that no one of these crops can be given sufficient attention and labor at the critical stages to make them profitable.

Peach growing requires equipment that can be used for few other crops. In addition, peach growing is very exacting on the time and attention of the grower for a large part of the year. This is especially true during the spraying and harvesting seasons, both of which require careful, personal supervision. The grower must keep informed on the best methods of fertilizing, spraying, packing, and harvesting the crop as practiced by successful growers, and by state and government experiment stations. He must keep in touch with the commission men and the cooperative marketing associations so

as to market his crop to the best advantage. He must arrange for sufficient labor to harvest his crop. In fact, there are so many details requiring attention in peach



Courtesy of G. C. Starcher

A 53-YEAR-OLD ELBERTA PEACH ORCHARD STILL IN PROFITABLE BEARING

growing that only men of unusual executive ability should attempt to plant large acreages to other money crops, if they would be successful peach growers.

Number of Acres Required for Commercial Peach Growing.—Twenty acres set to one variety of peaches is the minimum for a commercial orchard. This will enable the grower to ship in carlots at each harvest. If less than this is set he will have to depend upon nearby markets which are likely to be glutted when his peaches are put on the market, or ship in cars with some of his neighbors. Sixty to seventy-five acres are considered sufficient for an average orchard where one or more varieties of peaches are set.