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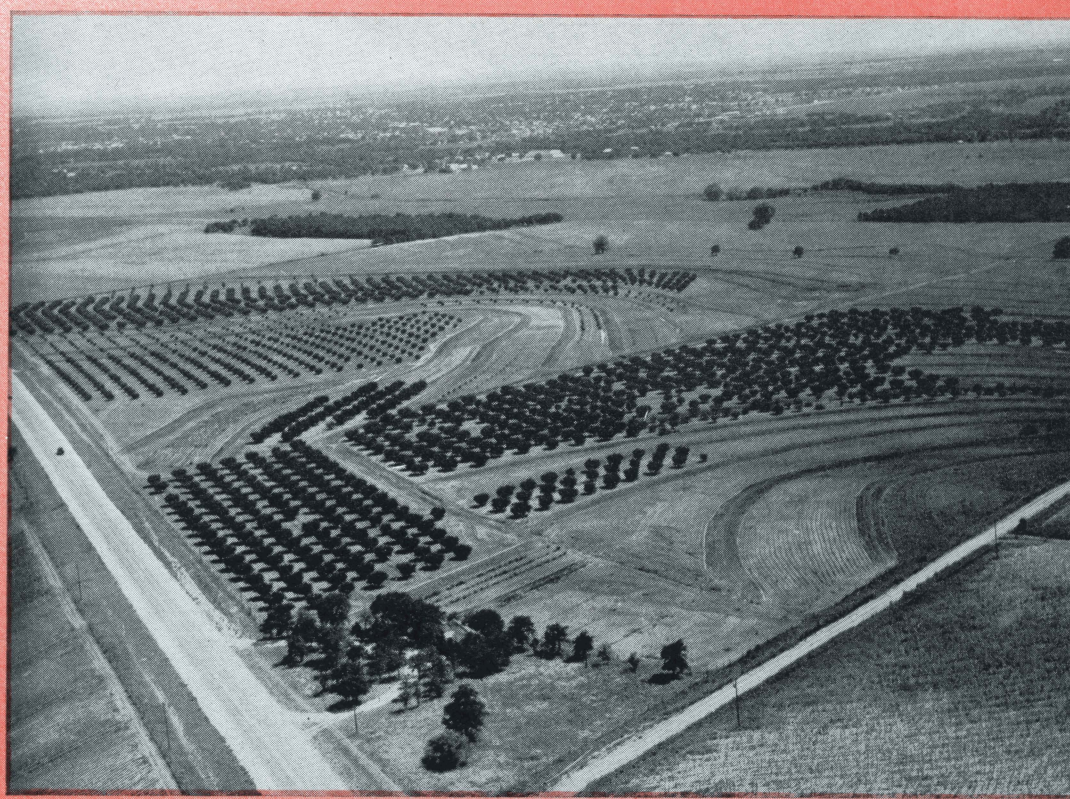
Production and Marketing Practices for Texas Peaches



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THE AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS
TEXAS AGRICULTURAL EXPERIMENT STATION - - - TEXAS AGRICULTURAL EXTENSION SERVICE
College Station, Texas

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Summary

Current developments in production and marketing practices for Texas peaches are presented in this publication. Results of research on peach growing at the Tyler, Stephenville and Montague stations and at College Station, Texas, are covered in this report. Generally accepted practices also are discussed.

In recent years a strong consumer demand for quality tree-ripened dessert peaches has influenced the development of the industry. In addition, full-ripe fruit is wanted for the rapidly expanding frozen food industry and for the manufacture of ice cream. The Texas peach industry can increase its share of the peach market by concentrating on producing and marketing tree-ripened fruit. Better production methods are increasingly important. These methods include good cultural practices, followed by improved harvesting, transportation and marketing methods.

Production

A complex of cultural factors produce top-grade fruit. A good site, high enough for good air drainage, is important. Good soil, deep, fertile, well drained and adequately supplied with moisture and a favorable climate are essential.

Other cultural practices also are indispensable: choice of the peach variety best adapted to the site, and marketable in terms of ripeness, size, color and flavor; thorough preparation of the site and clearing out of unwanted weeds and grasses; adequate spacing of trees; good pruning and fruit thinning; proper attention to specific fertilizer needs and the control of insects and diseases.

Harvesting and Marketing

In producing quality peaches it is important that the fruit remain on the tree until it attains ripeness that insures good eating quality.

Harvesting and marketing practices should be designed to protect the perishable tree-ripe fruit and get it to the consumer in top-quality shape.

Picking containers should protect the fruit from bruising and be suitable for hauling it from the orchard to the packingshed.

Shipping containers should provide this same protection against bruising in transit; in addition, they should be attractive in appearance so that the buyer will be favorably impressed with the product.

New sizing units that work well with a roller-grader and revolving table also provide maximum protection from bruising.

Hydro-cooling is a method used to preserve the fruit at the proper stage of ripeness until it reaches the market, mainly by removing field heat which produces overrapid maturation.

Decreasing the time of handling and transportation has become more important when dealing with tree-ripened fruit. Texas peach growers, therefore, tend more and more to market their fruit in a local area and avoid long hauls to market.

Since the peach is highly perishable, it is necessary for the grower to work along with the wholesale and retail grocers in planning the movement of the crop. A well-organized marketing system requires about 30 days to plan and move the product from the farm to the consumer.

Production and Marketing Practices for Texas Peaches

*H. F. Morris, T. E. Denman, U. A. Randolph, J. B. Storey, H. B. Sorensen, F. R. Brison, E. E. Burns and B. G. Hancock**

SPANISH EXPLORERS INTRODUCED the first peach into the area now included in Texas in the 16th century. Anglo-American colonists early in the 19th century brought in additional varieties. These early peaches were grown from seed and varied widely in size, shape, color and other characteristics. They were small, white or yellow in color and some were streaked with red. The so-called Indian peaches, still growing in some places in Texas, are representative of these early fruits.

Pioneers, dedicated to the improvement of the peach, soon developed name varieties from these types that were superior to the original types. J. W. Steubenrauch, horticulturist of Mexia, Texas, worked with peaches for 60 years. Ultimately, he had 100 or more varieties growing in his orchard. By crossing Elberta with Belle October peaches he originated the Frank, Irma, Lizzie, Liberty, Anna, Tena, Barbara, Katie and other less well-known varieties. His Carman variety, obtained in 1889 as a chance seedling, was considered the best early-ripening variety in the early days of commercial peach growing in Texas.

Other popular varieties were the Frances, introduced in 1895, by L. T. Sanders; Arp, by C. P. Orr in 1897; Alton, by T. V. Munson in 1899; and Early Wheeler, by E. W. Kirkpatrick in 1906. These varieties contributed to peach growing in Texas, but they in turn have been replaced largely by other superior varieties. Only the Frank, Carman, and Early Wheeler are still being planted.

In 1901, the Texas Legislature enacted legislation authorizing the incorporation of companies that grew fruits, vegetables and tobacco. Between 1902 and 1905, 26 commercial orchards, mainly peach orchards with more than 45,000 acres, formed corporations under this law. The Texas nursery industry expanded rapidly and in 1905 the Texas Legislature passed the Texas Nursery Inspection Law to protect fruit interests in the State. This statute protected Texas nurserymen by enforcing restrictions on the importation of diseased and pest-infested nursery stock, and by enforcing their control within the State. The Texas Orchard and Nursery Inspection Law was revised in 1925. In 1953, this law was amended to require that the nursery stock be identified as to origin but also to discourage the sale of nursery stock that is untrue to name or which is dead or devitalized to the extent that it is unfit for sale.

*Respectively, horticulturist, Substation No. 2, Tyler; associate horticulturist, Substation No. 20, Stephenville; associate horticulturist, Fruit Investigations Laboratory, Montague; assistant professor, Horticulture Section, Department of Soil and Crop Sciences; associate professor, Department of Agricultural Economics and Sociology; head, associate professor and extension horticulturist, Horticulture Section, Department of Soil and Crop Sciences, College Station, Texas.

Geographic Producing Areas

Peaches are grown widely in Texas, but commercial production is centered mainly in two areas. One area is in East Texas and includes mainly the counties of Smith, Red River, Rusk, Cherokee, Upshur, Camp, Harrison and Wood. The other area is in West Central Texas and includes mainly the counties of Clay, Montague, Parker, Eastland, Erath, Comanche, Sommerville and Gillespie. Some peaches are produced commercially in Limestone and Freestone counties. Peaches are not grown extensively in other parts of Texas.

Peach Growing—A Dynamic Industry

Peach growing is a highly specialized, intensive type of agriculture. Originally, the Elberta was the variety predominantly grown in Texas. The bushel basket was the standard container and peaches were shipped in refrigerated cars mainly to distant markets for fresh eating, canning and preserving. In contrast, today's orchards have a combination of varieties that provide a succession of ripening dates. In addition to bushel baskets, other satisfactory types of containers such as lugs and fiber boxes are being used. Most near-ripe peaches are shipped by truck, preferably refrigerated, to nearby markets where customers purchase the fruit for fresh eating and quick freezing. Increasing quantities of full-ripe peaches are also being used for the manufacture of ice cream.

Successful peach growing depends on precise operations because this fruit is so perishable. The following factors are important in the profitable commercial production of peaches and are based on experience in growing and marketing peaches at three

substations and at the Texas Agricultural Experiment Station, College Station, Texas:

Size influences the marketability of peaches. Peaches of good size (2¼ inches in diameter and larger) sell readily. Variety, thinning and other cultural operations influence size.

Color is important. Peaches with varying proportions of red and yellow surface color, with yellow flesh, sell best in retail stores. Color is determined by the variety, pruning, thinning and soil fertility.

Maturity and *freshness* encourage repeat purchases. Immature fruit does not appeal to the average buyer.

Flavor, which is a pleasing blend of sweetness and acidity, ultimately sells peaches best in the market. Taste and flavor vary widely, however, for different varieties and under different growing conditions.

Success in growing marketable peaches with these qualities depends on the important factors presented in the following pages.

Production

CLIMATIC CONDITIONS

Close investigation should be given to climatic conditions before investing money in peach production in Texas. Table 1, on climatic conditions, shows that occasionally the various peach producing areas are severely affected by some type of calamity such as freeze, insufficient cold hours, drouth or hail. Special attention should be given to selecting varieties needing 800 to 950 chilling hours for the eastern part of the State. Four years during 1940-60 did not have sufficient cold hours at the Tyler station for the Elberta.

Varieties with high chilling requirements should be more profitable in the West Cross Timbers section since only 2 years of the 1940-60 period showed insufficient cold hours at the Stephenville station.

Trees or crops seldom are destroyed entirely more than 1 year in succession.

SITE

The selection of orchard site is very important. The elevation should provide for adequate air drainage, which tends to prevent frost pockets and damage or loss from occasional late spring frosts. The elevation above the immediately surrounding country is more important than the elevation above sea level. Steep slopes should be avoided because of excessive erosion.

SOILS

Peach trees thrive best on soils that are: (1) deep enough to accommodate good root penetration, (2) sufficiently fertile to support good growth and fruit bearing, (3) well-drained, both on the surface and in the subsoil and (4) adequately supplied with moisture necessary for normal growth.

At the Tyler station peaches are grown successfully on soils that have a 12 to 18-inch surface layer of sandy loam underlaid with a pervious subsoil, which indicates good drainage and sufficient air for root growth. Heavy blue or grey subsoils are unfavorable for long life of trees because of poor drainage and poor aeration, Figure 1.

TABLE 1. CLIMATIC[1] CONDITION REPORT ON PEACH PRODUCTION IN VARIOUS AREAS, 1940-60

Years	Tyler				Stephenville				Montague				Stonewall			
	Freeze	Lack of cold hours	Drouth	Hail	Freeze	Lack of cold hours	Drouth	Hail	Freeze	Lack of cold hours	Drouth	Hail	Freeze	Lack of cold hours	Drouth	Hail
1960							1	2								
1959					1		1						1			2
1958																
1957	1	0											1		1	
1956	1		2		1				2				1		2	
1955	3				3				3				3		2	
1954	2		1		3								1		2	2
1953							2						1			
1952	2	0				0	2		3				2			2
1951	1						2				1					
1950	2	0				0	2		2				2			
1949											1					
1948			1		2						1					
1947																2
1946												3				3
1945				2												2
1944	1				1				2							
1943	3				2				1							
1942	1								1							
1941	1	0		1												
1940	2			1												

[1]Rating: 0 = lack of cold hours in number; 1 = slight; 2 = severe; 3 = total.

At the Stephenville station and Montague laboratory, peach orchards have been grown successfully on sandy loams, 6 inches deep and deeper, underlaid with a reddish clay subsoil. Experience at these stations shows that orchards on these soils can be expected to produce commercial crops for 15 years or more. In Clay county, some profitable orchards have sandy surface layers that are as much as 20 feet deep, and some superior orchards grow in such locations.

PROPAGATION OF TREES

Standard varieties of peaches are propagated by budding them onto rootstocks of proved adaptability. The growth, productivity and longevity of a peach tree depends considerably on the rootstock.

Peaches belong to the same genus as plums, apricots, cherries and almonds and may be interbudded with all of these species. In commercial practice, however, only the peach is used as a rootstock. Rootstocks grown from "natural," or wild peaches, from Tennessee, Kentucky and the Carolinas, were used in the past. More recently, seedlings of named varieties such as Lovell and Elberta have been used extensively. These seedlings and those from natural fruit are susceptible to nematodes, particularly the root-knot nematode, a troublesome soil pest in many peach-growing areas. The S-37 is somewhat resistant to the root-knot nematode and is being used to some extent where that pest is present.

Trees of name peach varieties budded on Nemaguard (FV 234-1), a new USDA peach rootstock, are growing on highly nematode-infested soil near Jacksonville. The trees are healthy and show no symptoms of nematode damage. Almost all trees in the same test, growing on the commercially common Lovell peach rootstock, were killed by nematodes within 3 years after planting. Another rootstock, Okinaga, is reported resistant to nematode damage. This stock has been released and is available commercially.

Peach trees on ordinary rootstocks for commercial plantings usually cost 40 to 50 cents per tree; special rootstocks are more.

REPLANTING

Some peach trees in an orchard die inevitably during the early years of the planting. In many cases, death of such trees is caused by poor drainage, shallow soil or some other unfavorable local soil condition. Trees should not be replanted on such locations until these conditions are corrected. Poor soil is not only the cause of tree loss, but it is the most serious cause. Research workers at the Stephenville and Tyler stations found that peach trees could be replanted with expectation of survival and normal growth if the death of the original tree resulted from causes other than an unfavorable site or soil.

At Brownwood, Texas, trees replanted on old sites on alluvial Frio clay loam showed striking benefits in new tree growth from soil fumigation with methyl bromide. Control of weeds and grasses, especially during the first 3 years after replanting, was found to be the most effective treatment for insurance of survival. This suggests that particular attention should be given to the eradication of heavy turfs of Bermudagrass and Johnsongrass before replanting peach trees on old sites.

Figure 1. Seepage damage to Burbank Elberta trees, resulting from poor drainage and aeration.

VARIETIES

Successful peach growing depends on a wise selection of varieties. Decision on varieties is important in the establishment and management of a peach orchard. A variety should yield satisfactorily; it should have an appropriate rest period for the locality in which it is to be grown; the time of blooming and initiation of growth in the spring should be after the customary date of freezes and killing frost; the trees and fruit should be resistant to diseases encountered; and finally, the trees should be vigorous and adaptable to the area. The variety also should sell well. Size, color, flavor and degree of ripening are factors that influence sales.

Many new varieties have been introduced in recent years as a result of intensive breeding programs conducted by state and federal research agencies and interested plant breeders. Many characteristics of these new varieties, such as skin color, firmness, flavor and disease-resistance are superior. By selecting the proper combination of varieties to provide for a succession of ripening dates, fruit will mature throughout the summer. The marketing system used and the length of the favorable marketing season determine the combination of varieties that provide the best succession of ripening periods.

Evaluation studies conducted over the past 20 years at Stephenville, Tyler and Montague stations show that varieties vary widely in adaptation. New varieties, therefore, should be planted on a trial basis until they are fully tested and recommended by qualified personnel at the stations.

The rest period and prolonged dormancy are important in the choice of variety. All commercial

TABLE 2. TEMPERATURE DURING NOVEMBER, DECEMBER, JANUARY AND FEBRUARY

Area	Hours below 45° F.						Hours above 70° F.					
	1955-56	1956-57	1957-58	1958-59	1959-60	Average	1955-56	1956-57	1957-58	1958-59	1959-60	Average
Montague	1694	1356	1444	1637	1737	1573	121	87	18	85	32	69
Stephenville	1386	1158	1474	1295	1583	1379	140	112	12	140	58	92
Tyler	1269	979	1258	1217	1355	1216	204	160	56	149	58	125
College Station	780	697	978	914	1099	894	314	272	126	174	98	197
Prairie View	747	630	604	914	1159	811	333	311	160	38	66	182
Crystal City	546	304	836	757	837	656	510	712	112	187	254	355

varieties are characterized by a rest period, and a certain amount of cold weather is required during the dormant season before trees resume normal growth in the spring. The actual degree of low temperature varies with varieties. Temperatures below 45° F. are regarded as effective and those above 70° F. are thought to be offsetting. Failure of leaf and flowerbuds to resume growth in early spring at the normal time for the variety indicates insufficient cold weather; this condition is known as prolonged dormancy.

The importance of winter chilling in peach growing has been known for a long time. Recently, interest in this factor has been stimulated by:

Several crop failures because of inadequate chilling (1950, 1951, 1952);

The accurate determination of the chilling requirements of the principal varieties of peaches;

Accurate records on the amount of cold and offsetting warm weather prevailing during the winter.

The Texas Agricultural Experiment Station has such records on each of the important peach-growing areas of the State, Table 2. Thus, it is now possible to determine rather accurately the amount of cold likely to occur in a given area and to select and plant varieties with appropriate cold requirements. Cold requirements for important peach varieties are given in Table 3.

Insufficient winter chilling may result in any one or a combination of the conditions briefly outlined as follows:

A delay in spring growth of both leaf and flowerbuds may occur and a prolonged delay of either results usually in loss of the crop.

Most varieties require more chilling for growth initiation of leafbuds than for flowerbuds. Thus, trees may bloom but the leafbuds may fail to grow at the proper time. The blooms and small fruit may be normal but they may drop because of the long delay in the formation of foliage needed to supply necessary plant food.

New growth of peach trees in the spring normally results from buds on limbs that grew and developed the previous season. Trees that do not receive sufficient chilling ultimately resume growth, but mainly from older buds near the ground, on the trunk and in the angles of the scaffold branches, instead of from

TABLE 3. PEACH VARIETIES FOR DIFFERENT AREAS OF TEXAS

Variety	Color		Cling or freestone	Chilling requirement—hours	Ripening season				
	Surface	Flesh			East Texas	West Cross Timbers	Hill country[1]	Mexia-Grosbeck	Brazos
Cardinal	red	yellow	cling	900	May 25-June 5	June 1-10	May 25-June 5	May 26-June 5	
Redcap	yellow/red	yellow	cling	750		June 5-10	June 1-8	June 1-8	June 5-13
Maygold	yellow/red	yellow	cling	650					June 6-16
Dixired	dark red	yellow	cling	1050		June 6-15	June 1-10	June 2-10	
Coronet	yellow/red	yellow	semi-cling	800	June 5-15	June 12-22	June 8-18	June 10-20	June 12-22
Ranger	red	yellow	freestone	950	June 25-July 5	June 25-July 10	June 20-July 5	June 20-July 1	
Triogem	yellow/red	yellow	freestone	850	June 15-25	July 1-12	June 25-July 5	June 25-July 5	
Southland	yellow/red	yellow	freestone	750					June 26-July 6
Redglobe	bright red	yellow	freestone	850	July 5-15	July 5-20	July 1-10	July 1-10	
Scarlet Elberta	dull red	yellow/red streaks	freestone	850	July 5-15				
Loring	yellow/red	yellow	freestone	850	July 10-20	July 12-25	July 5-15	July 5-15	July 6-16
Redskin	bright red	yellow	freestone	750-800	July 15-25	July 22-Aug. 10	July 15-Aug. 1	July 15-Aug. 1	
Elberta	yellow/red	yellow	freestone	850	July 25-Aug. 5	July 22-Aug. 10	July 15-Aug. 1	July 15-Aug. 1	
Frank	yellow	yellow	cling	750	Aug. 1-15	Aug. 10-25	Aug. 5-20	Aug. 5-20	Aug. 15-25

[1]Gillespie-Blanco counties area.

1-year-old buds. Such trees appear ragged and are susceptible to sunscald because there is no protective foliage during the spring. Special attention in pruning is required to reshape trees of this kind and to provide protection against sunscald damage in the meantime.

Peach varieties with cold requirements less than the prevaling amount of cold for a locality probably will bloom early, and the chances of the fruit being killed by freeze or frost are increased. Those varieties with cold requirements greater than the usual amount of cold in their locality will be delayed in blooming and growth. The rest period, by delaying growth only briefly, may serve as a distinct advantage. Observations at the Stephenville station indicate the importance of selecting varieties with chilling requirements slightly more than the average accumulation of effective cold. The slightly prolonged dormancy, thus imposed, causes a delay in blossoming which often means a difference between a full crop and a total loss, in years when spring frost is a critical factor.

The varieties planted most widely in Texas are listed in Table 3; important characteristics and ripening season are given for each. Varieties recommended for planting in each important peach growing area of the State are listed in the order of ripening in Table 4.

PLANTING TREES

Peach trees become reestablished readily when transplanted during the dormant season from late December through February. The recommended spacing is 20 to 25 feet in East Texas and 25 to 30 feet in North Central Texas since soil moisture is more likely to be a limiting factor at critical times, Figure 2. This spacing is not favorable for spraying two rows at one time with a speed sprayer; rows spaced 20 or 25 feet apart with the trees planted at either 25 or 30-foot intervals in the row can be sprayed more efficiently. Early vigorous growth of young trees can be encouraged by the application of fertilizer and by controlling weeds and grass through cultivation or the use of chemicals. The rate of growth during the first year is related directly to the age at which the trees produce profitable yields. Good growth the first year hastens the attainment of tree size necessary for yields at an early age.

PRUNING

Pruning develops and maintains a tree with good shape. Branching should begin at a height that will permit easy cultivation. Overall height of the bearing tree should be favorable to easy harvesting of the fruit from the ground since fruit bends limbs downward. The center of the tree should be open, but enough small limbs in the interior should be left to provide shade for the framework branches to help prevent sunscald. An open center facilitates harvesting, enables sunlight to penetrate the interior of the tree, encourages good fruit color and is favorable to uniform distribution of spray materials.

TABLE 4. PEACH VARIETIES RECOMMENDED FOR VARIOUS GROWING AREAS

East Texas	West Cross Timbers	Gillespie and Freestone counties	Brazos county
Cardinal	Cardinal	Cardinal	Maygold
Coronet	Dixired	Redcap	Hiland
Triogem	Ranger	Coronet	Redcap
Ranger	Redglobe	Redglobe	Southland
Scarlet Elberta	Loring	Loring	Loring
Loring	Redskin	Redskin	Frank
Redskin			
Elberta			
Frank			

Two general systems are followed in the selection and shaping of the limbs that are to become the main framework of a tree. Both have been used successfully at various units of the Texas Agricultural Experiment Station.

First System

Steps followed in pruning trees by one system are:

First year—When a tree is transplanted, the central stem should be headed back so that it remains 24 to 30 inches high. A large number of lateral branches will develop when growth starts in the spring. Three of the new limbs radiating in different directions from the uppermost part of the trunk are selected to become the primary scaffold branches of the tree. Limbs originating near the same point are more likely to make uniform growth than those spaced at intervals along the trunk. When the three primary branches have been selected, any other branches that might retard their growth or crowd them should be removed. This system of shaping trees is used in orchards of the Stephenville station, and the trees develop well-knitted heads with wide-angled, durable crotches and framework.

Second year—During the winter before the beginning of the second growing season, all limbs along

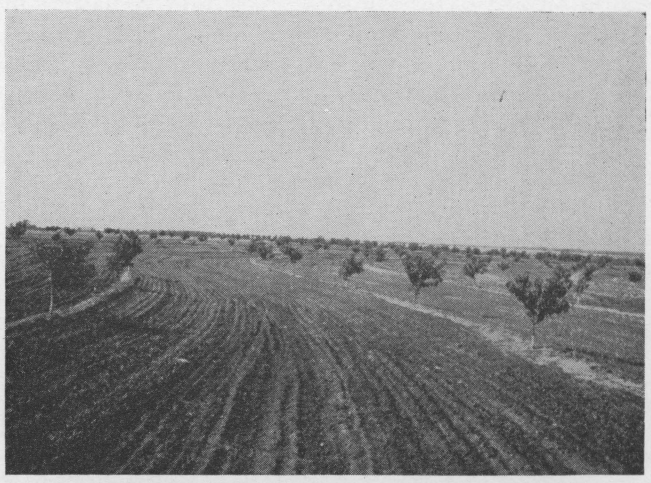

Figure 2. One-year old peach orchard planted on contour to conserve soil and moisture.

the main trunk are cut off except the three selected for the framework. Each of the three main scaffold limbs is cut back, preferably about 12 inches above the juncture of the branches with the main trunk. This stimulates the growth of lateral branches. Two limbs growing in opposite directions and rising at different points are selected from these lateral branches and encouraged to produce the tertiary scaffold limbs of the permanent framework. Limbs that grow into the center of the tree should be cut out to produce an open center.

Third year—Each of the six secondary scaffold limbs are pruned back, if necessary, to produce additional framework limbs around the perimeter of the tree. Center limbs and low-hanging outside limbs should be removed. Some thinning of smaller limbs and twigs along the main branches is necessary, and tips of leading branches should be cut back to preserve the uniform shape of the tree and maintain it at the desired height.

Future years—With the scaffold limbs and framework of the tree well established, future pruning should keep the fruiting area at the desired height, maintain the open-center feature of the tree and discourage overbearing by judicious thinning of potential fruit-bearing limbs. Thinning is accomplished by removing limbs along the main framework, leaving relatively short fruiting limbs spaced about 8 inches apart and by heading back most of the vigorous growing limbs that tend to give the tree excessive height.

Second System

Another system widely used in training peach trees is outlined as follows: when the young tree is set in the orchard, it is headed to a height of 24 to 30 inches. All lateral limbs should at this time be cut to 4 or 5-inch stubs, a procedure necessary to protect the vegetative buds which are used in developing the framework of the tree. When sufficient new growth has developed in the spring for the selection of lateral limbs, at least three of these limbs spaced 6 to 8 inches apart and radiating in different directions should be chosen. The terminal buds of all new growth not chosen for frame limbs should be pinched out to halt excessive development. Allowing the extra new growth to remain serves two purposes: a replacement can be made if damage occurs to a selected frame limb and the foliage helps to shade the young tree trunk while aiding in plant food development.

Frequent inspection through the growing season should be made to curb any excessive development of the surplus new growth and to make any replacement required for selected frame limbs.

Very little pruning is required during the first 2 or 3 fruiting years if correct training is obtained on the young tree, but occasionally a limb must be removed in order to maintain an open type tree. Older, more mature trees should be pruned more heavily than younger ones, though too much wood often is removed even from vigorous bearing trees. In future years, the pruning of the bearing trees is essentially the same as that previously outlined.

FERTILIZATION

No definite fertilizer recommendation can be made for all peach orchards. Soil type, fertility, amount of erosion and the age and condition of the trees all enter into one of the more perplexing problems of orcharding. Results of previous research indicate the effect of the rootstock, and behavior of the individual tree is more likely to determine the rate of tree growth and its productive ability than any variation of plant nutrients.

Soils in East Texas are deficient in nitrogen and phosphorus and the light sandy soils are somewhat deficient in potash. Therefore, it is considered necessary to furnish all three of the major elements, nitrogen, phosphorus and potassium, to the bearing peach tree. The usual recommended formula is a 1-1-1 ratio for the sandy soils and a 2-2-1 ratio for the redlands or heavy clay loams.

Some growers consider that one application of nitrogen during the first 3 years is sufficient to secure the desired tree growth. Usually the required nitrogen is obtained from an addition of one-half pound to 1 pound of ammonium nitrate to the tree during each season.

The introduction of the new, early-ripening varieties of peaches further complicates fertilizer recommendations. Recent results of an extensive fertilizer test with Dixired peaches at the Stephenville station show that a spring fertilizer application delays ripening from 1 to 2 weeks. Such a delay can mean a tremendous loss to the grower with the price dropping rapidly so early in the season. A more serious problem arises when these early clingstones are then forced to compete with the first freestones on the market.

The problem becomes less critical as the season advances, but the grower should be careful in the fertilization of bearing trees in the drier areas of the State. Frequently, a heavy application of fertilizer will delay the maturity of the fruit until a dry period occurs, resulting in total or partial loss of the crop. A fertilizer test with the Halehaven variety at the Stephenville station was affected by this condition approximately 1 year in 3. A balanced fertilizer of a 1-2-1 ratio is suggested where the moisture supply is likely to become deficient during midsummer. This provides trees with essential plant food elements without promoting excessive vegetative growth.

CULTIVATION

A thorough job of site preparation before planting trees is highly economical and profitable. This operation includes the eradication of undesirable turfs of perennial grasses and brush growth. It is also advisable in some instances to use a subsoiling chisel

to break through the hardpan to improve soil drainage and to increase water-holding capacity.

Whether a disk harrow, springtooth harrow or plow are used in cultivating the orchard after the trees are planted, two operations are essential. First, the depth necessary to till the soil for best results should be established and this depth maintained to avoid cutting feeder roots. Second, deep tillage close to the young trees should be avoided since it may ruin young brace roots as well as ruin the feeder root system.

In the eastern section of the State it is well to leave a certain amount of surface residue when plowing under a cover crop or removing summer weeds and grasses, Figure 3. Excessive cultivation is expensive and undesirable since the so-called "clean cultivation" allows rapid runoff during a rain and poor absorption of moisture. In the Cross Timbers, clean summer cultivation, Figure 4, is a worthwhile practice because it helps to conserve moisture. Cover crop should be grown during the winter, Figure 5. It discourages wind and water erosion and adds organic matter to the soil when plowed under.

THINNING

Need, time and method are important in fruit thinning.

Need

Thinning is necessary for the production of quality peaches. The demand for larger fruit in recent years has created a need for exact thinning, especially with the early-ripening varieties that tend to be small. Such varieties actually require wider spacing than some of the older varieties that normally attain good marketable size with little thinning. Station tests show that a spacing of 6 to 8 inches along the twigs is desirable for these new varieties. On well-loaded trees this necessitates the removal of much fruit, which seems drastic to many growers; however, the larger size attained by the remaining peaches partly compensates for those removed. A harvest of 2 or 3 bushels of large fruit that brings top prices is more profitable than twice as many bushels of smaller fruit selling for low prices. A heavy crop often delays ripening, sometimes a week or more, which tends to offset advantages of planting early varieties. This is important early in the season when the price tends to drop rapidly. In dry summers, unthinned fruit may even fail to reach marketable size, resulting in a total crop loss.

Thinning favorably affects the leaf-fruit ratio by eliminating a part of the fruit and by stimulating greater twig growth and leaf size, both of which react advantageously in the production of better grade peaches.

Time

Work at the Stephenville station shows that with early-ripening varieties, thinning is most effective if it is done early, shortly after the shuck-off.

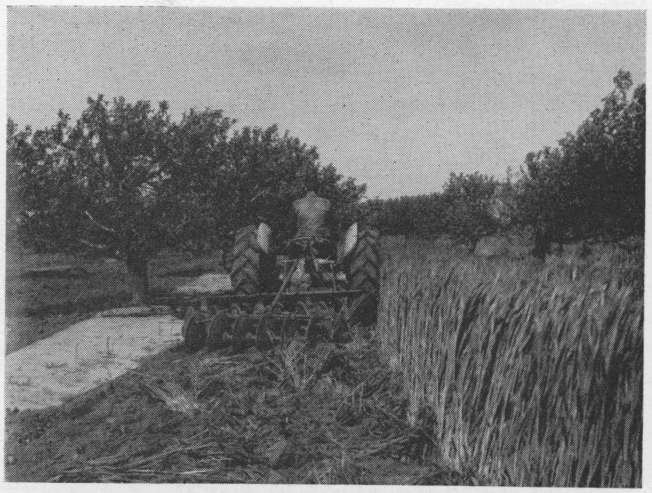

Figure 3. Disking small grain, mixed oats, wheat and barley in an 18-year-old Elberta orchard, leaving some surface residue.

Figure 4. Clean summer cultivation.

Figure 5. Cover crop mixture of oats and Austrian winter peas in mature peach orchard.

Timing is not so critical with mid-and-late season varieties. These may be thinned with decreasing results any time before maturity. Thinning by hand is more tedious when the fruit is small than later when it is larger. Rapid and relatively inexpensive methods of thinning are often practiced early, followed by more precise and careful thinning before pit-hardening time.

Method

Fruit usually is thinned by hand-pulling and by knocking with a looped section of a V-belt or rubber hose attached to a short pole. Chemicals are being used experimentally. Hand-pulling is slow, tedious and expensive but is most practical for varieties which must be thinned early when the fruit is small. Thinning with a belt or hose is effective for removing fruit that has attained one-half inch in diameter. This rapid method should be followed with more careful hand-thinning.

There has been widespread interest in the use of chemicals for thinning peaches. The most promising material tested under Texas conditions has been a carbamate, (3-Chloro-1PC). Variable results were obtained when it was used on different varieties at the Stephenville station. Some varieties were thinned too much and others showed little response. Standard concentrations did not produce the same degree of thinning during different years. Chemical thinning obviously requires less labor; however, results in Texas have been inconclusive, and additional research is needed before chemical thinning can be recommended.

INSECTS AND DISEASES

Many insect pests and diseases are injurious to peach trees and fruit. Information on these and management practices to control them are presented in MP-283, "Peach and Plum Diseases" and in L-245, "Texas Guide for Controlling Insects and Diseases on Fruits and Nuts," which may be obtained from county agricultural agents or the Agricultural Information Office, A&M College of Texas, College Station, Texas.

COST OF ORCHARD

Planting a peach orchard is a long-term investment which requires several years before the first crop can be harvested. There are 3 nonproductive years after planting in which all cultural operations should be practiced. Main cost items are land, trees and labor and management of planting and cultivation. Land costs are variable. Good land for peaches can be purchased for $60 to $100 per acre, depending on the location. Good trees cost 45 to 75 cents per tree. Usually 87 to 108 trees are planted per acre. Costs of planting and maintenance until bearing age are extremely variable, depending on local factors. Reports from Tyler and Stephenville show that costs of developing an orchard to bearing age range from $150 to $200 per acre.

Harvesting and Marketing

The profitable sale of peaches is the ultimate objective of commercial peach growing. Profitable sales depend on variety and quality characteristics already discussed. They also depend on proper maturity, postharvest handling (pre-cooling and storage), picking and shipping containers and finally market outlets.

MATURITY

The development of sweetness and other taste factors ceases when a peach fruit is harvested from a tree. It is important, therefore, that the fruit remain on the trees until it is ripe enough to insure good eating quality. Several ways may be used to determine ripeness.

Color is a measure of ripeness. Growers learn to associate various shades of ground color with maturity. A change in ground color from whitish green to yellowish green is a basis for determining maturity of most varieties. All fruit on a tree does not mature at the same time.

Color cannot be relied on entirely as an accurate index for peach varieties that develop extensive red pigmentation well before maturity. Yellow ground color, particularly at the stem end, can be used. The best color index is the absence of green color at the shaded area where the fruit-bearing twig has been in contact with the fruit. This area has been shaded by the twig and the interfering red pigments do not form here. Yellowness of this area and peach maturity are directly related. Experienced pickers become adept at selecting fruits that are mature by their general appearance except those varieties that are all red.

Firmness of flesh is another way of determining maturity. Hand pressure has been used and more recently accurate fruit pressure testers have been used to determine maturity. This has been proved to be the most accurate means of measuring maturity and maintaining the desired level of fruit quality going to market. Fully ripened fruit has a pressure test of less than 4 pounds as determined by the Magnuss-Taylor pressure tester. This is too ripe for fruit which is to be shipped to market, or which is not offered for retail sales in less than 24 hours. This fruit has poor eating quality and is subject to bruising and postharvest rots. The ideal stage of maturity by pressure test is in the 4 to 7-pound range. This fruit ships well and ripens sufficiently during the short holding periods in the market system to be of prime quality when offered for sale. Pressure testers may be obtained from most orchard supply houses.

The actual degree of desired ripeness is determined by the market outlet. Peaches should be full-ripe for use in ice cream, firm-ripe for canning or freezing, firm-ripe to full-ripe for sale at roadside markets and hard-to-firm-ripe for distant shipment.

Observations and tests to determine the ideal stage of maturity for Texas-grown peaches indicate that these objective tests can be used successfully. This information, however, is more valuable when it is supplemented with a practical knowledge of environmental conditions and market desires.

Size can be used also as a guide to maturity, since increases in fruit size and maturation proceed rather evenly. However, in some sections of the country where peaches are produced under irrigation, the fruit may reach maximum size well in advance of maturity. Under Texas conditions, although size can be used as a guide, it should be supplemented with color and texture measurements or observations.

HARVESTING

Increasing quantities of Texas-grown peaches are being harvested in a more mature state. This makes it more important to exercise unusual care in the harvesting and handling of this highly perishable crop.

Picking Containers

In recent years, consumer demand for ripe peaches has encouraged growers to change harvesting practices. Bushel baskets and drop-bottom picking bags, popular containers for harvesting fruit in the past, are not suitable for tree-ripened peaches since such fruit bruises easily.

A good picking container should be sturdy and should protect the fruit from bruising during picking and hauling. It should be inexpensive, should enable the picker to use both hands for picking and should be suitable for hauling fruit from the orchard to the packingshed.

A sturdy wooden box which can be snapped easiiy to a shoulder strap worn by the picker was especially suitable at the Stephenville station, Figure 6. When three layers of fruit have been placed carefully in the box, it can be unsnapped quickly and transferred to the truck used to haul the fruit to the packingshed. The box is well suited for stacking in the field, on the truck and in the packingshed.

Since only three layers of peaches are placed in the shallow box, bruising of soft fruit is reduced greatly. A soft pad in the bottom of the box provides additional protection.

Growers report wide adaptation of this harvesting container for different steps in handling and marketing peaches. Some growers haul their fruit directly to large public markets in the box and package the fruit as it is sold. This is an ideal method for hauling choice, tree-ripened fruit that should be handled with care. Other growers stack the boxes several feet high on their trucks and haul the fruit to the packingsheds.

PRE-COOLING AND STORAGE

Hydro-cooling

Peach hydro-cooling is valuable when the fruit is to be held in cold storage for short periods. Storage is recommended when an even or orderly flow of fruit into marketing channels is desired. Hydro-cooling is a way of rapidly removing field heat from the fruit. This heat can be harmful in that rates of maturation and breakdown are directly related to heat. Cooled fruit has a longer storage and market life.

The process of removing heat by hydro-cooling involves flooding or spraying the fruit with ice water. Commercial hydro-cooling units are available, or small capacity units can be built by following available specifications.

The relationship of initial fruit maturity, hydro-cooling and postharvest-ripening temperatures to consumer acceptance is presented in Table 5.

Maturity of fruits was determined by a Magnuss-Taylor pressure tester. The fruit was subjected to hydro-cooling, storage and taste tests at three levels of maturity. These were: ripe peaches which had a pressure test of 2 pounds or less; semi-ripe which had an average test of 6 pounds; and green which had an average test of 12 pounds.

The hydro-cooling treatment consisted of cooling the peaches for 15 minutes at a temperature of 35° F. to remove field heat.

The storage ripening of the semi-ripe and green peaches was carried out at room temperature and at 65° F. As this fruit reached the ripe stage it was removed to 35° F. storage and held for organoleptic evaluation.

Figure 6. Wooden picking box attached to shoulder strap.

Examination of the table reveals a pattern of preference for peaches receiving the various treatments in the following order: (1) room temperature, (2) hydro-cooling plus room temperature, (3) 65° F. storage and (4) hydro-cooling followed by 65° F. storage. Peaches ripened at room temperature were preferred to those ripened at 65° F. and peaches which were not hydro-cooled were preferred to those which were. This indicates the flavor of the peaches was impaired by the chilling action of hydro-cooling.

The initial maturity of the peaches seems more important for determining quality than any one treatment or combination of treatments investigated here. Ripe peaches were rated more acceptable than storage-ripened fruit and storage-ripened semi-ripe fruit was rated as more acceptable than storage-ripened green fruit.

Another advantage of hydro-cooling other than simple heat removal is that it prevents postharvest decay. Many suitable commercial preparations are available. Those that are principally phenolic derivatives or chlorine compounds usually contain wetting agents to improve coverage and provide more efficient heat exchange. Ordinary sodium hypochloride household bleach can be used with the addition of wetting agents for small-scale operations. The label indicates the chlorine concentration of the bleach; this should be diluted to 100 parts per million.

Postharvest Ripening and Storage

Peaches which are not fully mature can be held at room temperature 1 to 2 days in the early summer; however, when day temperatures are high and the relative humidity is low, excessive shriveling and weight loss occur. When this condition exists, ripening should be carried out under cool temperatures. Research with Texas peaches indicates that 65° F. is an ideal ripening temperature. Peaches in the pressure test range of 4 to 7 pounds ripen satisfactorily in 24 hours; in the pressure test range of 7 to 10 pounds, they ripen in 48 to 72 hours; and in the pressure test range of 10 to 12 pounds, they ripen in 3 to 6 days. Ripened fruit will remain in edible condition 7 to 10 days when stored at 35° F. to 40° F.

The use of cool storage ripening rooms is recommended for fruit which has been picked slightly immature. Cold storage is valuable in maintaining an orderly flow of quality fruit to the market.

TABLE 5. RELATIONSHIP OF MATURITY, HYDRO-COOLING AND STORAGE RIPENING TO CONSUMER ACCEPTANCE OF RANGER AND DIXIRED PEACHES

Initial maturity	Pressure test	Treatment[1]	Days to ripen	Consumer acceptance ranking
	Average		Average	Average
Ripe	2 pounds	RT	0	1
Ripe	2	Hy + RT	0	2
Semi-ripe	6	RT	5	3
Semi-ripe	6	65°	7	4
Semi-ripe	6	Hy + RT	5	5
Semi-ripe	6	Hy + 65°	7	6
Green	12	RT	7.5	7
Green	12	Hy + RT	7.5	8
Green	12	Hy + 65°	14	9
Green	12	65°	14	10

[1]RT = Room temperature storage.
Hy = Hydro-cooled.
65° = 65° F. storage.

GRADING AND PACKING

The peach is highly perishable and must be moved quickly in all channels of distribution from the grower to the ultimate consumer. This includes efficiency in handling and packing the fruit by the grower.

The introduction of new highly colored varieties of peaches with very light pubescence has eliminated the need for expensive brushing units. The careful handling required for tree-ripened fruit has made most sizing machines obsolete. Formerly elaborate machines were used in sizing and preparing peaches for market.

Some growers have turned to packaging directly from the harvesting container. They use a small sloping table with a surface large enough to hold two or more containers for different-sized fruit. The picking box is conveniently located on a shelf attached to one side of the table, and the fruit is sized by hand as it is transferred to the proper container, Figure 7.

A well-trained crew of packers capable of turning out the maximum number of units per day is essential for efficient operation. The grower must follow orchard practices that will insure the production of a uniform crop of medium-to-large-sized fruit.

Revolving tables are becoming a standard fixture in many of the new packinghouses, Figure 8. When large quantities of cull fruit are brought to the shed, a roller-grader can be combined profitably with the revolving table to remove such fruit before it reaches the packing stations located around the table. This provides a rapid and economical system of packaging, especially where a minimum of sizing is required.

New types of sizing units are being developed that work well with a roller-grader and revolving table to provide maximum protection from bruising at all times. Such a machine has recently been completed at the Stephenville station, Figure 9. The entire unit is designed so that the fruit is never dropped. It rolls along on canvas aprons as it moves from the roller-grader to the sizer and on to the revolving tables.

MARKET OUTLETS

Quality peaches have a good potential market in Texas and adjacent states. Essential to the successful marketing of peaches are good size, color and taste. Peaches also must be available in sufficient quantity throughout the season to enable them to become an established commodity on the market.

Before 1930 numerous packinghouses were located in important production centers that handled carload shipments to distant markets. Equipment used in these sheds was designed to handle the hard, green fruit to be ring-packed in bushel baskets. The practice of facing the basket with a layer of highly colored fruit often was unsatisfactory to the buyer and added little value to the final product.

By 1940 the trucking industry largely had taken over the marketing of peaches. Many truckers dumped the fruit into the open bed and hauled it hundreds of miles to market. The fruit lacked quality, but the buyer did have an opportunity to see what he was purchasing.

A new market arose after the war with the rapid expansion of the frozen food industry. There is also an excellent market today for fresh dessert peaches throughout the summer. The public is demanding a highly colored, yellow-fleshed peach with good flavor that is ready for immediate consumption when purchased.

Several market outlets are sales from roadside stands, to packingshed operators, brokers and wholesalers, local stores, processors and direct sales from orchards.

Roadside Stands

Successful marketing of fruit from a roadside market depends on these important factors:

Fruit clean and attractively displayed, Figure 10.

Fruit available over a prolonged period.

Several kinds of commodities available.

Location in its nearness to population center or to a well-traveled highway.

Sales from Orchards

Sales from the orchard to the consumer dispose of crops in another way. The sales are usually small (1 bushel or less) and the consumer wants the highest quality fruit. This is a good market outlet, particularly for growers in areas where there are relatively few orchards.

Packingshed Operators

Packingshed operators usually are located near the center of the peach production area. They are usually reliable businessmen who purchase the load of picked fruit from the grower. The packingshed operator buys and receives the fruit, grades, packs and loads it for shipment and usually has contacts where it can be sold. Packingsheds may be independent enterprises or cooperatives of local growers.

Brokers and Wholesalers

Brokers and wholesalers usually are located in a distant terminal market and buy or accept consignment of the packed fruit from packingshed operators for sale to the retail merchants.

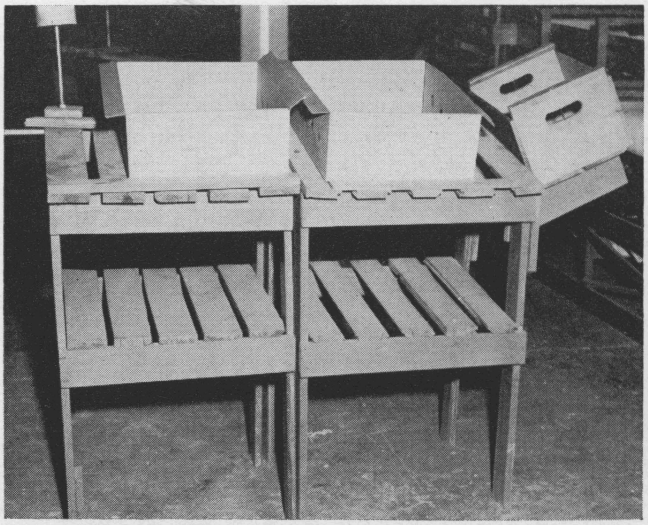

Figure 7. Individual packing station where fruit is packaged directly from harvesting container.

Figure 8. Revolving tables are common in many new packinghouses.

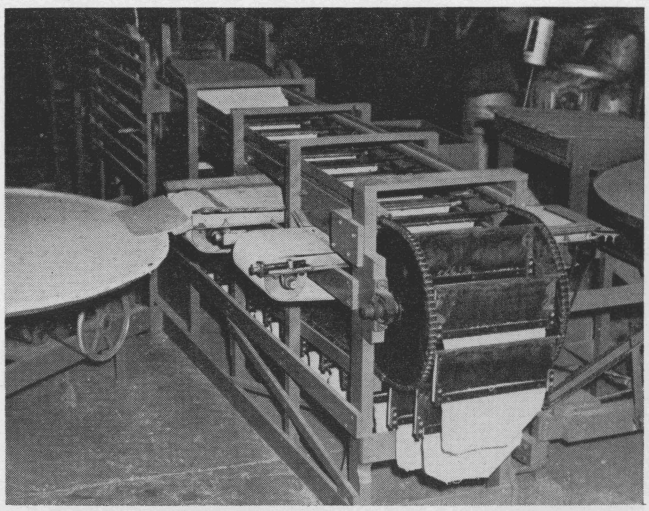

Figure 9. Roller-grader and revolving table with latest type of sizing units.

Terminal market buyers in major cities are willing to purchase Texas peaches if volume is maintained for 6 to 8 weeks during the season.

Successful marketing by this method depends partly on the aggressiveness of the broker. The attractiveness of any account to the broker is determined by the volume and quality of fruit and the length of time that it will be on the market. This is particularly true for brokers who have accounts with growers in areas that can supply quality fruit throughout the season.

Local Stores, Chain Stores and Supermarkets

Local stores, chain stores and supermarkets constitute an outlet that can be utilized in marketing peaches. Success depends on a clear understanding and a close working relationship between the store and the grower. Here again the arrangement is likely to be successful if clean, attractive, high-quality fruit is supplied throughout a given period.

Direct Sales

Sales may be made to truckers seeking a produce load to carry as a "back haul" or to produce dealers who will purchase an entire crop.

In order to buy as cheaply as possible, the trucker is willing to purchase "combined grade." He may, at times, purchase only the top grade. This method of direct sales is not a very reliable way to move an entire crop because the truckers are not always there to buy.

Processing, Freezing and Canning

Peaches for freezing and canning represent an important market outlet, which needs to be developed further. Since Texas peach production is oriented mainly towards fresh market sales, processing is considered as a supplementary outlet. However, new production techniques extend the hope of high-volume commercial peach processing in Texas. These techniques promise greatly increased yields per acre, a reduction of the unit production cost and the selection of peach varieties specifically for processing.

Peaches for home processing represent an excellent outlet for fully ripe peaches. These peaches generally are too soft to withstand extensive handling or shipment to market but are ideal for the home processor. To encourage this type of sales, several growers provide customers with instructions for freezing peaches. Instructions developed by the Texas Agricultural Experiment Station are shown in the Appendix.

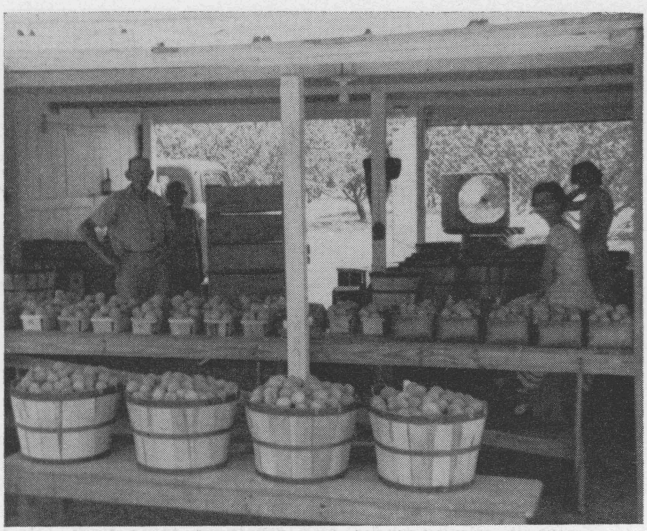

Figure 10. Selling peaches at a roadside stand.

SHIPPING CONTAINERS

A successful shipping container should: (1) transport produce to market in the best condition possible, (2) be attractive in appearance, (3) identify the product and (4) create a memorable and pleasing impression of the product.

The container also should be strong and easily stacked and protect the produce from bruising. It should be easy to pack and handle, should display the product neatly and attractively and should be inexpensive.

Regardless of construction, bulk containers have certain common weaknesses. Some of the fruit in the bottom of the container is bruised by the pressure from above. When fruit is stored for any length of time, various kinds of rots spread through the container.

Each major type of container has some particular advantage.

Baskets

The bushel basket has been the most popular container for shipping green mature peaches. It is inexpensive and can be easily packed and handled with green mature fruit. However, it does not give adequate protection from bruising for the more mature-type peach now demanded by consumers.

Wirebound Boxes

To overcome some of the objections to the round wooden basket, various types of wirebound boxes appeared on the market. Evaluation studies revealed that these boxes somewhat reduced the bruising of tree-ripened fruit for distant shipment. They stacked better in storage than regular baskets and made a fairly attractive pack.

The wirebound box is used mainly for shipping green mature peaches. It is a major competitor to the basket. Its major advantages are that it can be stored in a flat condition, thus reducing space and that it is easily stacked for shipment and storage.

Lugs

For many years, West Coast growers have used the conventional peach lug in combination with paper cups for individual fruit. This container has been accepted readily by all supermarket managers because of its many desirable features. It is a small, easily handled container that stacks well, offers maximum

protection to the fruit and can be used for display, Figure 11. With the increasing demand for ripe fruit, some losses do occur in the bottom layer of the pack. The thin cardboard pad, which separates the two layers of fruit, does not always protect the bottom layer from bruising. Recent experiments with a thin veneer shelf, supported on cleats between the two layers of fruit, showed that it was possible to give the bottom layer adequate protection. Several types of molded cup trays, designed for use with the standard peach lug, are now available. They would replace the fruit cups and eliminate the need for the supported shelf but would again pose the problem of careful sizing. These trays do not seem as practical as the crinkle cup which does not require careful sizing of the fruit.

Fiberboard Containers

Many kinds of fiberboard boxes, designed for bulk packaging, have been developed in recent years. Some of them are in one piece and can be assembled rapidly by folding at certain points. The newer types are using a moisture-resistant fiberboard that prevents the box from collapsing in moist storage. They are attractive and can be used for displaying fruit in the store.

Recently designed fiberboard containers have many desirable features of the wooden peach lug. A container with a sturdy shelf that would be fully equal to the lug in all respects could be constructed.

Cell Containers

Several years ago it seemed that cell containers might be the answer to the growers' problem of giving the fruit more individual protection. Initial studies indicated several objectionable features to the early types. Since the cells were not interchangeable, the grower was required to stock many different sizes of boxes for various-sized fruit. The boxes frequently lacked sufficient strength and were not moisture proof. Unless the fruit was carefully sized, it rolled about in the individual cell, resulting in considerable bruising. Recent improvements in construction, along with interchangeable cells for one standard box, have made these containers more acceptable.

CONSUMER ACCEPTANCE

Consumers are becoming more familiar with tree-ripened peaches and would like to buy this type of a peach which can be used as a fresh dessert. A tree-ripened peach requires some modifications in picking, harvesting and marketing. The peach industry has made every effort to produce and market the type of peach the consumer wants. To reduce the time of handling a tree-ripened peach, the distance peaches will move to market should be limited. The volume of peaches that is produced currently in Texas can be marketed 300 to 500 miles from the area of production.

Considerable work by the Department of Agricultural Economics and Sociology and the Stephenville station has been done to determine the quality acceptance of new varieties of Texas-grown peaches in retail stores during the past 4 years. Sales of peach and other stone fruit were compared for 2 years. In 1956, peaches accounted for 58 percent, plums 36 percent and apricots 6 percent of stone fruit sales. However, during the same period in 1957, peaches accounted for 65 percent of the sales while plums accounted for 30 percent and apricots, 5 percent.

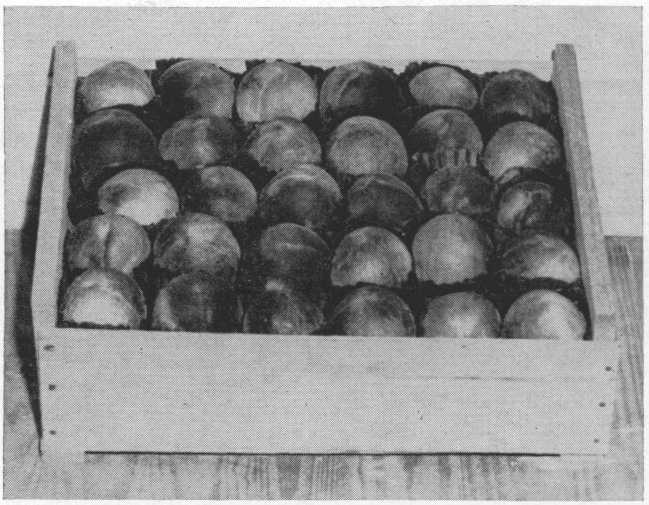

Figure 11. An attractive lug pack, showing Redglobe, a promising new peach variety ready for distant shipment.

Texas peach sales increased from 50 to 63.3 percent of total peach sales during the 3-year study, Table 6. During the study, research improved the size and quality through better grading techniques.

The first year of the study, Texas peaches were sold at the same price or less than competing peaches. However, in the second and third years of the study the larger peaches were sold at a premium, thus showing the consumer is willing to pay for quality. Texas peaches, having equal or greater sales volume, show that Texas can produce quality peaches that more than satisfy consumer demand.

Texas peaches were sized in three groups in 1958-59. The large-sized (2⅝ inches) peaches were sold at a 2-cent premium price and the medium-sized (2⅜ inches) peaches were sold at the same price as the competing peaches in the retail stores. During these tests these two sizes of Texas peaches (more than 80 percent of Texas peach volume), when properly sized and graded, competed at the same or higher price with fruit from other areas, indicating that Texas peaches can be competitive, especially when more than 60 percent of the peaches sold in the stores were local Texas peaches, Table 7.

Retail store tests on firm-ripe and green mature peaches conducted by the Texas Agricultural Experiment Station during 1959 showed that almost all waste and spoilage resulted from shriveled, slow-moving, green mature fruit rather than from bruising of overripe fruit. When peaches of varying degrees of ripeness were mixed in a display, consumers pinched the

TABLE 6. DISTRIBUTION OF PEACH SALES BY AREA OF ORIGIN, 1957-59

Year	1957	1958	1959
		Percent	
Texas peaches	50.0	53.8	63.3
Peaches from other areas	50.0	46.2	37.7

fruit and handled it more, in an effort to select the riper peaches. As a result, damage was incurred and waste was increased. It was also difficult to maintain the attractive appearance of the display. A few green peaches mixed with the fully-colored fruit gave the display a green appearance which slowed down sales. Consumers demand fresh, ripe peaches for immediate consumption.

Retail store sales tests in Dallas during 1957 revealed that the shelf life of Texas peaches compares favorably with that of peaches from other areas. Spoilage of Texas peaches resulted in a total loss of only 6 percent to the retailer.

All stores will not sell the same volume of peaches. The average income of the people in the area of the store influences the sale of all commodities. Peach sales in pounds per 100 customers and 100 produce items are shown in Table 8. Stores were classified according to income groups, and the produce items per customer are shown for each store. The high and low-medium income stores sold more peaches per 100 customers in 1957 than the other groups, but in 1958 the medium-high income store had the greatest sales with the high income group next, followed by the lower income stores. The low-medium income store had the lowest number of pounds of peaches per 100 produce items, while the pounds of peaches sold per 100 customers was higher. This may be caused by larger individual sales, possibly purchases for canning.

Appendix

INSTRUCTIONS FOR HOME FREEZING OF PEACHES

Frozen peaches are an attractive and delicious dessert. Properly prepared and handled, the flavor and appearance are similar to the fresh fruit. No other fruit lends itself to freezing preservation as well as these fresh, tree-ripened peaches. The steps to follow are simple.

Peeling

Dip the fruit in boiling water until the skin slips off easily. This requires 1 to 2 minutes, depending on the maturity and variety of the fruit. Place the fruit immediately in cool water to avoid any cooking of the flesh. Slip the skin from the fruit and pare

TABLE 7. DISTRIBUTION OF TEXAS PEACH SALES BY WEIGHT AND VALUE OF SALES

Year	1958	1959	1959
Size of peaches	Pounds of peaches		Value of sales
		Percent	
2⅝ inches	29.9	27.5	32.1
2⅜ inches	54.8	55.8	55.4
2⅛ inches	15.3	16.7	12.5

away the defective areas. Quickly cut the fruit into halves and remove the seed. Cut the halves into as many sections as desired and immediately place the cut fruit in a holding solution which will prevent browning.

Holding Solution

Unless treated, the peeled and cut peaches will discolor rapidly when exposed to the air. This may occur not only when the peaches are being prepared for freezing, but also later when they are being thawed to be eaten. Ascorbic acid, vitamin C, is the ideal material to prevent this browning. It can be purchased from any dealer in home freezing supplies. The holding solution should contain 0.1 percent ascorbic acid, one-half teaspoon per quart of water by household measure.

Sugaring and Packing

Remove fruit from the holding solution and drain away all excess moisture. Mix the fruit with dry sugar in a large pan or bowl at the rate of 1 pound of sugar per 4 pounds of fruit. Put fruit into containers and cover it with the syrup which remains in the pan or bowl. Close the containers with an airtight seal. Label them, including the variety of peach and the date. Freeze the fruit as quickly as possible.

Containers

Containers for frozen peaches should be reasonably airtight and moisture proof. They should be shaped for space economy in the freezer, easily labeled and economical. Plastic films and containers, moisture-vapor-proof containers and glass freezing jars may be used satisfactorily.

The following points are important:

Use tree-ripened, high-quality fruit.

Prepare and freeze the fruit as quickly as possible.

Always use ascorbic acid.

Place containers in the freezer loosely. This allows air to circulate around the packages and they will freeze faster.