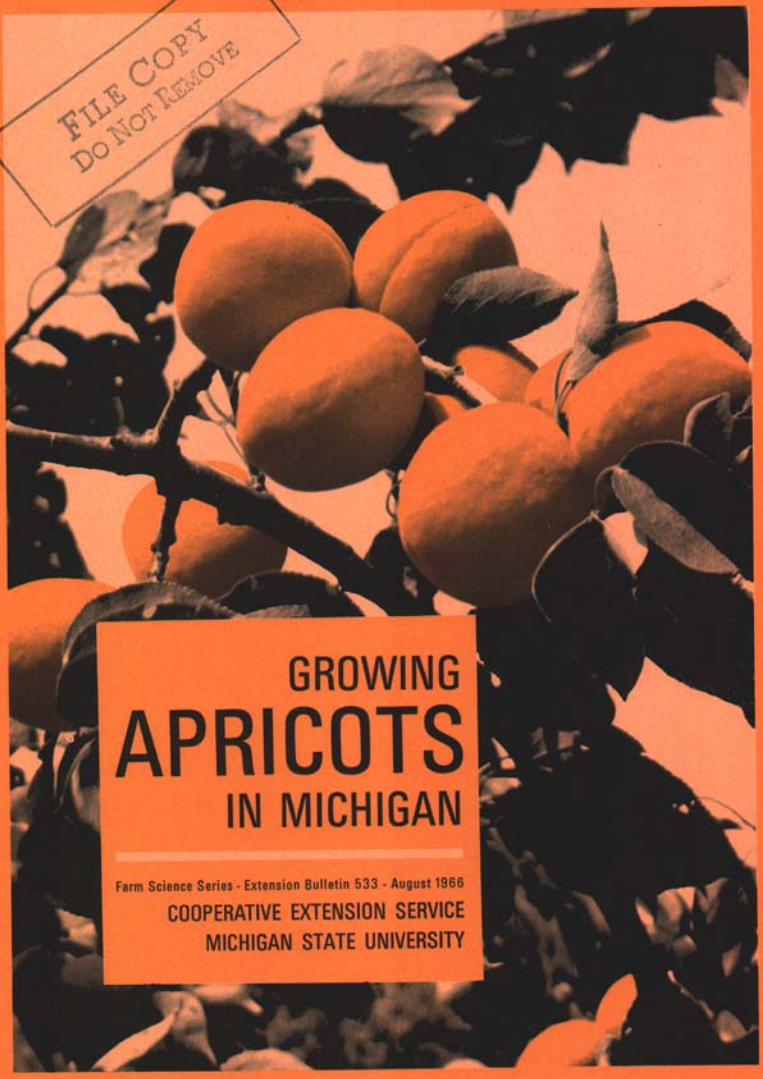
Growing Apricots in Michigan
Michigan State University
Cooperative Extension Service
Farm Science Series

Stanley Johnston, J.E. Moulton, R.F. Carlson, and R.P. Larson, Department of Horticulture

August 1966
12 pages



GROWING APRICOTS IN MICHIGAN

Farm Science Series - Extension Bulletin 533 - August 1966
COOPERATIVE EXTENSION SERVICE
MICHIGAN STATE UNIVERSITY

GROWING APRICOTS in Michigan

Stanley Johnston, J.E. Moulton, R.F. Carlson, and R.P. Larsen

Department of Horticulture

CONTENTS

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U. S. Department of Agriculture. N. P. Ralston, Director, Cooperative Extension Service, Michigan State University, E. Lansing, Mich.

1P—10M—9:66—DB

THE APRICOT, (*Prunus armeniaca, L.*) is one of the most delicious of all fruits when properly grown and ripened on the tree. The common apricot probably originated in western China. Some small-fruited, hardy types are native to Russia. Apricots were grown in Virginia as early as 1720, but commercial production in the United States is now essentially confined to the semi-arid regions of the west, with 90 percent of the production in California and most of the remainder in Washington and Utah. The average annual United States production of apricots, 1958-62, was 188,000 tons. Most of the crop is preserved by drying or canning with a limited quantity sold fresh on local markets or shipped to midwestern and eastern areas.

ADAPTABILITY IN MICHIGAN

Many attempts have been made to grow apricots commercially in areas east of the Rocky Mountains, but without success. Apricot trees were planted at the South Haven Experiment Station late in the last century, but the project was abandoned because of high tree mortality and inability to control the plum curculio.

Investigations in apricot culture were resumed at South Haven in 1939. Varieties from many parts of the world were tested but all failed. Three varieties originating in Michigan showed some promise and have received extensive trials in the state since 1957.

Much has been learned from observing trial plantings in many parts of Michigan. Two problems of special importance have resulted in the loss of many trees. These are (1) winter injury to young trees, and (2) the lack of a satisfactory, readily available rootstock.

WINTER INJURY

Young apricot trees are likely to make excessive growth, especially trees from 2 to 5 years of age. Trees making excessive growth do not mature early in the fall and are, therefore, more subject to injury from low temperatures in November and early winter. There is some danger of winter injury until the trees are fully grown. Mature apricot trees are considerably hardier than mature peach trees.

Preventing or Reducing Loss.

1. Grow young apricot trees slowly. They should not make more than 2 feet of annual growth. See suggestions for controlling growth under the discussion on soil management.

2. Train young trees carefully. It is extremely important to train young trees correctly to prevent weak crotches that are very susceptible to winter injury. Read carefully the section on "Training the young tree."

3. Protect the trunk. The southwest side of the trunk becomes very warm on sunny days in late fall and winter. At night the temperature frequently drops to well below freezing. This alternate freezing and thawing often injures the bark and wood. This permits wood-destroying fungi to gain entrance, and a large canker is likely to develop.

Various means of shading the trunk have been tried, including wrapping it with nursery paper, burlap, and plastics and use of metal shields. None of these have been satisfactory and often have caused serious damage. Shading the trunks with boards driven into the ground a few inches from the southwest side of the tree is laborious and not completely effective, and the boards interfere with orchard tools.

A method that holds some promise is painting the trunk with a latex-based, white paint. This paint is non-caustic because it is fast drying and does not contain turpentine or oil. It gives good coverage throughout the winter and the white surface reflects the sun's rays, preventing deep bark penetration. The paint should be brushed onto the trunk from the ground line up to the first scaffold branch. *Caution*: Do not use ordinary house paints containing oil, turpentine, or lead. If these are used, the trees may be killed or seriously injured.

Whitewash formulas which have been tried have not lasted well throughout the winter. This has resulted in inadequate coverage of the trunks by late January.

4. Inspect the orchard in October. Make certain that no holes have developed in the soil at the base of the trunk. All such holes should be filled, making certain that the soil level adjacent to the trunk is slightly higher so that water will drain away from the tree. Water collecting in depressions near the trunk will form ice in late fall or winter. Often this ice will girdle the tree, causing death or serious injury.

ROOTSTOCKS

For the past five years, several different rootstocks have been tested for Michigan apricot selections. Seedlings of several peach varieties (Elberta, Halehaven, and Lovell) were used in the early apricot testing program and in rootstock trials. These seedlings proved to be poor rootstocks for apricots. They were not totally compatible with apricot varieties, since many trees broke at the graft union both in the nursery and in the orchard (Fig. 1).

Growers should not use apricot trees grafted on peach seedlings. In the rootstock test, apricot seedlings from different varieties were included for comparison with peach seedlings. Among these were Manchurian apricot seedlings and seedlings of the Michigan apricot selections, South Haven 6 and South

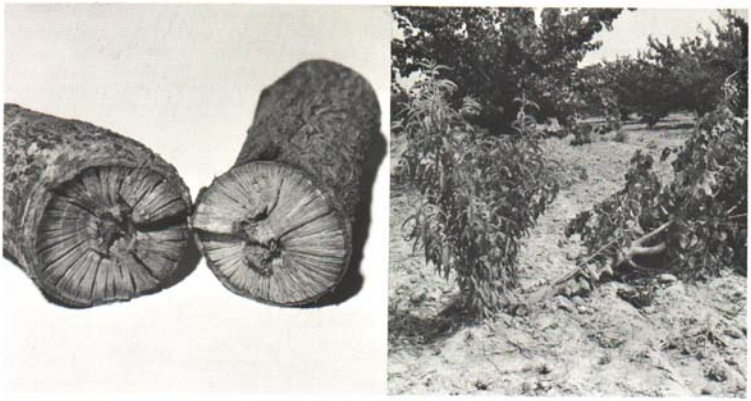


Fig. 1. Left: Section of apricot tree trunk broken at the graft union because of incompatibility of apricot on peach. Right: Incompatability resulted in excessive suckering (left) from peach root prior to separation at the graft union.

Haven 7. These apricot seedlings were much better than peach seedling rootstocks. The Manchurian seedlings are especially winter hardy and have given strong, healthy trees with minimum tree loss. Next best as rootstocks were the South Haven 6 seedlings.

AVAILABLE ROOTSTOCKS

Although often short in supply, either pits or seedlings of Manchurian apricot can be obtained from nurseries. For source of pits or seedlings, contact the Michigan State University Horticulture Department.

Pits of South Haven 6 are not now readily available; however, pits may be locally available from certain processing plants which separate the pits from the fruit prior to processing.

Some nurseries are starting to grow their own seed. The pits should be removed from the flesh before planting them during October. Another method is to plant as soon as the fruit is ripe, to avoid having to clean the pits from the flesh. South Haven 6 and Manchurian seedlings appear to be the most promising apricot rootstocks at this time.

VARIETIES

The standard varieties grown in the West have failed in Michigan. No named varieties have been released in Michigan; however, some numbered selections have been released for trial plantings and several new selections show considerable promise. Only those varieties or selections recommended by the Michigan Agricultural Experiment Station should be planted. Comments on varieties now under trial in Michigan are as follows:

South Haven 6.

The tree is vigorous and productive. Tree mortality has been low. Ripens about July 23 at South Haven. The fruit is medium in size, bright golden in color, and of sprightly flavor. Fruit is firm and does not drop prematurely. Suitable for fresh market and processing for baby food, but not suitable for commercial canning. South Haven 6 is the most dependable variety now available for planting in Michigan.

South Haven 7.

A fine apricot that has had to be dropped from the approved list because of its susceptibility to winter injury and to the bacterial spot disease. To date, bacterial spot of apricots is uncontrollable. See section on "Diseases".

South Haven 50.

Recently released for trial in Michigan. This variety has an excellent tree and produces a large, bright golden apricot maturing about with South Haven 6. It should be planted sparingly until more is known about it.

Curtis.

A seedling found in the garden of the late Frank J. Curtis of Charlotte, Michigan. It ripens about a week later than South Haven 6. Fruits are of medium size, round, rich golden with a bright red blush, and of excellent flavor. It is slow in reaching full bearing. the fruit drops too much when ripe, and it is moderately susceptible to bacterial spot. It should be planted in limited numbers for the fresh fruit market only.

Other promising varieties have been found in the apricot breeding plots at South Haven. These will be released for trial as quickly as possible.

THE USE OF POLLINATORS

South Haven 6 is apparently completely self-fruitful and can be planted alone. The other varieties, while ordinarily self-fruitful, will set heavier crops when unfavorable weather prevails during blossoming periods if they are interplanted with other fertile varieties.

LOCATION FOR PLANTING

Plant apricots in Michigan only in locations recognized as suitable for peach production.

SITE AND SOIL

Apricots blossom about a week earlier than peaches. Therefore, they should be planted only on sites which are practically frost-free. Elevation of the site above the surrounding country will give added protection against loss from frost and winter injury. The soil must be well drained and preferably of a sandy type. Poor subsoils of any kind will result in the death or poor growth of many trees. Heavy soils should not be used for apricots as such soils are likely to be poorly drained.

PLANTING THE ORCHARD

When: Plant in the spring; fall planted trees are more subject to cold injury during the first winter after planting.

How: Plant deep enough that the bud union is below ground level, making certain that soil is well settled and firm around the roots.

Planting distance: It has been observed that tree loss is less where apricots are planted somewhat closer in the row than originally recommended. Larger production per acre will be obtained earlier in the life of the orchard, and also later because of a larger tree population remaining. Accordingly, a planting distance of 18 feet x 24 feet is now suggested.

TRAINING AND PRUNING

Training the young tree. Use the modified central-leader system and leave two main scaffolds on opposite sides of the trunk, well separated so they will not touch each other when fully grown. The first scaffold should be about 18 inches above the ground. The second scaffold should be 8 to 10 inches above the

Fig. 2. Injury starting in a moderately sharp-angled crotch. This small canker should be repaired at once, or it could cause damage such as that shown in tree at right.

Fig. 3. A two-year-old tree that has been trained to the modified central-leader system. The main scaffolds are well spaced and have wide angles at the point of attachment with the trunk. *Note:* There is an extra branch that should have been removed in the top and possibly some heading back done, but the essential framework is good.

Fig. 4. A three-year-old tree trained to the modified central-leader system. The main scaffolds have wide angles where attached to the trunk. They are a little close together. In general, this is a strong framework.

first. Select scaffolds having wide angles at the point of attachment with the trunk. Sharp-angled branches split badly (Fig. 2). The leader must be left longer than the scaffolds so that it will not be shaded out.

It is very important the second spring to remove all excess scaffolds from the trunk, retaining just two or three (Fig. 3). The scaffolds may have to be headed back somewhat if they are likely to grow higher than the leader.

By the third and fourth years, the trees are beginning to produce some fruit. The main framework of the tree has been established, and pruning is mostly to remove additional branches that may come from the trunk, and to head back new terminal growth if it exceeds 2 feet in length (Fig. 4). A small amount of thinning out may be necessary where branches are too thick or are rubbing. It is important not to leave too many branches originating close together on the trunk (Fig. 5).

Pruning the mature tree. The apricot produces most of its fruit on rather short-lived spurs. The principal problem with mature trees is to remove branches loaded with old spurs and keep the trees producing good replacement wood. To accomplish these objectives will require a combination of thinning out branches having many weak spurs, and heading back long branches to the first strong lateral branch. Mature trees must make from 16 to 24 inches of new terminal growth a year to maintain satisfactory annual production. If less growth is made, the trees will fall into a biennial bearing habit, in which they will produce a large crop of small apricots every other year.

The best time to prune apricots is during March or April. Do not prune during late fall or mid-winter because of drying out and possibility of winter injury. Large cuts on the trunk should be painted with grafting compound.

SOIL MANAGEMENT

It is of great importance to grow young apricot trees slowly. They have a tendency to make excessive growth, rendering them more susceptible to winter injury. New growth should not exceed 2 feet in length annually.

Cultivation and cover control. Young trees should receive little, if any, cultivation. Older trees, in bearing, should be cultivated only enough to obtain practical control of weeds and grass and to partially incorporate cover crops into the soil. Cultivation in bearing orchards should be done early enough in the spring to prevent cover growth from competing excessively with the trees for moisture and nutrients. It should be stopped by mid-July, however, to prevent excessive or late growth which would render the trees more susceptible to cold injury.

Cover crops, when properly grown, help supply organic matter, provide soil cover to prevent erosion

and protect tree roots from deep soil freezing, and may provide needed competition with the trees in late summer for moisture and nutrients. The most common cover crop used is rye. Other popular cover crops are wheat, vetch or buckwheat in combination with rye, Sudan grass mixture, and oat and rye mixture.

Sod covers may be successfully used if the grass is mowed two or more times during the season to prevent annual weeds from taking over and to reduce moisture loss. Deep-rooted perennials, legumes (alfalfa and clover), or quackgrass may seriously compete with bearing trees for moisture and nutrients. However, sod strips of dense, relatively shallow-rooted grasses such as bluegrass or Chewings fescue provide a very effective cover for easy movement of equipment and for erosion control (Fig. 6).

Chemical Weed Control. To avoid possible tree injury, herbicides should not be used in most nonbearing orchards, and only with considerable care in bearing orchards. *Apricots are very sensitive to chemical injury.* Growers using herbicide chemicals in apricot plantings should use only the lowest recommended rates of cleared materials. Complete control of weeds under the trees is not necessary and usually not desirable. It is usually best to apply no chemicals on light, sandy soil where there is sparse weed growth. See Extension Bulletin 433, "Chemical Weed Control for Horticultural Crops," for further information.

FERTILIZERS

Nitrogen is the most important nutrient in fruit production and is usually the only fertilizer element that should be applied regularly in Michigan orchards. However, young apricot trees have great inherent vigor even on relatively poor soils; therefore, nitrogen fertilizers should not be used in young plantings on reasonably fertile land and sparingly even on light, sandy soils. As the trees become older, start producing and the danger of winter injury becomes less, nitrogen applications will need to be increased sufficiently to insure an annual growth of 16 - 24 inches, which is needed to maintain good production. Nitrogen should be applied in late fall, after mid-November, or before growth starts in spring. The kind of nitrogen to use should be chosen on the basis of cost of actual nitrogen and ease of application; however, nitrogen in the form of urea should be avoided.

Potassium is the only nutrient element, other than nitrogen, that is likely to be needed in Michigan apricot plantings. Potassium deficiency reduces tree growth, yields, and fruit quality. The best way to determine need for potassium (potash) is through leaf analysis. When needed, potash may be applied in the fall or spring. Orchards low in potassium may need up to 100 pounds of potash (K_2O) per acre, but this amount can be applied in relatively large amounts every 3 to 5 years. The most common potassium fertilizer is muriate of potash (60 percent K_2O).

Fig. 5. A poorly trained tree with many branches originating at one point which will result in excessive crowding, splitting and winter injury. This type of tree will not live to maturity.

Fig. 6. A vigorous five-year-old apricot orchard. Notice especially the ground cover used to slow down the growth of the trees.

Phosphorus is utilized in only small amounts by fruit trees compared to either nitrogen or potassium. There is no present indication that apricot trees will benefit from applications of phosphorus. However, in some cases, fertilizers containing phosphorus may benefit growth of cover crop.

FRUIT THINNING

If fruit set is heavy, thin the individual fruits so that they will be 1½ to 2 inches apart. Otherwise, fruits will be small and the trees will become biennial in bearing habit. Thinning can be done by hand, or, faster and easier, by careful pole thinning. Bamboo poles of various lengths are used. The top 12 inches should be covered with a piece of garden hose to reduce injury to the branches.

By this method, the excess fruits may be removed by rubbing and tapping. Hard blows should be avoided as all of the fruits will be knocked off for a considerable distance from the point of contact. Early thinning is recommended. Start thinning as soon as danger of frost has passed.

INSECT AND DISEASE CONTROL

A coordinated program of good cultural management, orchard sanitation and a thorough spray schedule is important for effective control of disease and insect pests that affect apricot trees.

Brown rot and bacterial spot are the two most serious diseases of apricots in Michigan. Brown rot can be controlled by following peach spraying recommendations in Extension Bulletin E-154, Fruit Spraying Calendar; however, *sulfur should not be used* on apricots.

Bacterial spot was not a problem with apricots in Michigan until about 1960, but it is becoming increasingly prevalent, especially if apricots are grown near peach trees. The disease causes many black blotches on the fruit, rendering it worthless. To date, it has not been possible to control bacterial spot by spraying. Fortunately, some varieties are immune to the disease and these are being selected in the apricot breeding program.

Apricot scab has been found in Michigan, but infections so far have not been serious.

Insects affecting apricots in Michigan include plum curculio, Oriental fruit moth, apple maggot, lecanium scale and peach tree borer. These can be controlled by proper and thorough spraying with newer recommended materials. *A note of caution*: Until further notice, *avoid the use of sulfur and dieldrin* in the spraying of apricots.

Adequate descriptions and control suggestions of insects and diseases are beyond the scope of this publication. Therefore, the following Michigan State University extension publications are suggested for detailed information on disease and insect control.

Extension Bulletin 154, Fruit Spraying Calendar
Extension Folder 17, Pest Control Program for Home Grown Fruit
Extension Folder 262, Brown Rot of Stone Fruits
Extension Bulletin 372, Fruit Insects of Michigan

CONTROLLING RABBITS AND MICE

Rabbits and mice are occasionally very destructive to young apricot trees. Consult your County Extension Agent's Office for information on the control of rabbits and mice, and for spraying apricots to control insects and diseases.

REMOVING CANKERS

It has been mentioned that wood-destroying fungi enter winter-injured areas on the trunk and sometimes near the base of the main scaffold limbs. It is a good practice to remove these cankered areas when small so that the wound will heal rapidly with as little damage as possible to the tree. Cut back the edges of the canker to live bark and scrape out the dead bark and wood in the center (Fig. 7). After cleaning out the canker, disinfect the area with bichloride of mercury solution (1-1000, ½ grain tablet in a pint of water) and then cover the injured area with a prepared tree paint. Such paints can be obtained from some nurseries and at garden and nursery supply stores.

CONCLUSION

The growing of apricots in Michigan must be considered as still in the trial stage. Therefore, plantings should be small until more is known about the culture of this fruit under climatic conditions prevailing in this state. Another good reason for small plantings is that better new varieties will undoubtedly be replacing present varieties rather rapidly.

Fig. 7. Left: A large canker on the southwest side of the tree caused by winter injury. See comments in the text on this type of injury and suggestions to prevent it. *Right:* The same tree after the canker has been removed. The injured area is then disinfected with bichloride of mercury solution (see section on Removing Cankers) and the entire area painted with a non-caustic tree paint.