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Pruning Sweet Cherry Trees for Hand Harvest

By Robert L. Stebbins and John R. Thienes

Extension Horticulture Specialist, Oregon State University, and Wasco County Extension Agent

Although sweet cherry trees will produce reasonably satisfactory crops without any pruning, growers have found several good reasons for a limited amount of training and pruning. Some objectives of training are different from those of pruning.

Train a young cherry tree to prevent its becoming excessively tall and difficult to pick, and to improve the structural strength of the crotch system. Acceptably low tree height can be obtained by causing extensive branching low on the tree. This is the direct opposite of training for mechanical harvesting.

Prune mature trees to reduce or maintain their height and to maintain vigor and fruit size. Pruning reduces overall tree size, which allows closer spacing of trees. On windy sites, pruning may be required to balance the tree and to reduce the amount of wind damage to fruit. Basically, pruning stimulates new growth in the area of the cut. It may stimulate other parts of the tree by increasing light penetration.

Pruning involves some risks. Occasionally, especially in rainy districts, bacterial canker (incited by *Pseudomonas syringae*) may enter the pruning wounds. More rarely, infection by cytospora fungus is spread by pruning. Pruning also may provide entrance for heart-rot fungi. Pruning in fall increases the susceptibility of trees to damage by an early freeze. Excessive pruning with large cuts will delay and reduce the production of young trees. Mechanical topping without follow-up hand thinning can cause excess growth in treetops, which shades and weakens fruiting spurs in the lower portions of the tree.

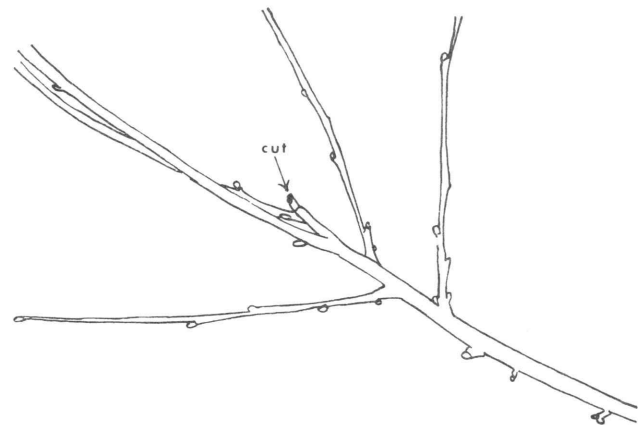
Training Young Trees

In districts where bacterial canker has been a problem in young trees, it is best to plant a branched tree of mazzard F-12-1 or mazzard seedling, and graft or bud the variety out on the limbs. Reduce the number of branches to four or five at planting time and head these halfway back to compensate for root damage in transplanting. Trees budded low in the nursery are generally planted as one-year whips. Head these at 18 to 24 inches at planting time to stimulate branching close to the ground, or at 24 to 36 inches if cultivation is necessary close to the trunk.

In districts where freeze injury occurs, trees with unusually narrow-angled crotches often have split trunks following a freeze. Splitting is caused by freez-

ing and expansion of water that has accumulated deep in the crotch. This can be prevented by using scaffold limbs with wide angles. In the first two seasons, remove all shoots that arise at narrow angles with the trunk. For a low, spreading tree, grow from four to seven primary scaffold limbs and numerous secondary scaffold limbs. In this way, no individual limb becomes too vigorous and upright.

Compared to other kinds of fruit trees, sweet cherries naturally branch very little. Often only one or two buds located immediately below the terminal bud, in addition to the terminal bud itself, develop shoots. Sometimes there is no branching at all. The terminal bud exerts a strongly dominant influence on lateral buds below it by means of hormones. Removal of the terminal bud, either by light dormant season heading or by summer pinching, will stimulate growth from two to five of the lower buds.



This shoot was headed a year ago at the point indicated, which stimulated five lower buds to produce shoots.

When the tree is 3 or 4 years old, a few of the buds below those which form shoots will form fruiting spurs if the tree has not been overpruned. If the shoots induced by heading are quite vigorous, they will suppress the lower buds and few, if any, fruit spurs will develop. Severe heading stimulates vigorous shoot growth and delays formation of fruit spurs, but light heading may increase fruit spur formation. Heading is used primarily to increase the number of branches formed close to the ground. Locate whorls of branches about 2 to 3 feet apart on the scaffold limbs.

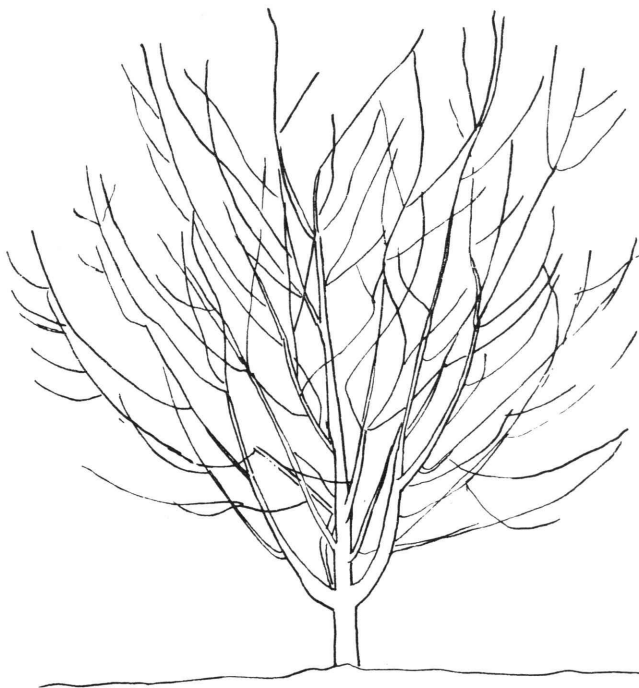


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Growers now have abandoned the practice of summer pinching to induce branching. Pinching has the advantage of obtaining branched growth in the same season, but this is usually offset by very narrow-angled branches, weak shoots, and spurs that bear small fruit. When shoots are 20 to 24 inches long and growing rapidly, pinch out the tip 5 or 6 inches. If less of the tip is removed, narrow forks will be formed. For this technique to be successful, trees must be growing rapidly. Because all branches do not reach the pinching stage at the same time, it usually is necessary to go over the orchard two or three times.

In dormant heading, head all shoots after the first and the second year's growth to 24 to 36 inches. Remove the terminal buds of shorter shoots to promote branching. By the third, fourth, and fifth years, less and less heading is required. Head only the vigorous upright shoots back to 24 to 36 inches and allow side branches to go unpruned. By the fifth year, terminal growth will be moderate because of the high number of terminals. When fruiting begins, usually in the fifth or sixth year, begin a program of scaffold removal to reduce the number gradually to six to eight main scaffolds. This reduction should take 7 to 8 years to achieve fully the open-centered, vase-type tree. Less selective heading can be accomplished quickly, using mechanical tree-topping machines. To avoid undue delay in bearing, prune only the amount necessary to achieve the desired tree shape. A simple rule of thumb to describe the dormant heading program would be: Head everything and remove



A 10-year-old sweet cherry tree trained for hand harvesting by selected dormant heading.

nothing the first 2 years. Head the vertical upright shoots the third and fourth years and remove nothing. In the sixth year, begin the scaffold thinning program if the tree begins to bear.

Pruning Mature Trees

Sweet cherries are borne on spurs that live as long as 10 years, provided they are not killed or broken off. Regular pruning to stimulate production of new fruiting wood, while not absolutely required, is a common practice in some districts. Many of the older orchards are pruned annually to keep the bearing wood young and productive.

Where large-sized cherries are desired, it is necessary to prune every year. Pruning can be done after shoot growth stops in summer to avoid infection by bacterial canker, but summer pruning is more dwarfing than winter pruning and may have a devitalizing effect. Time for pruning depends on the effect desired.

Cutting part way back on a shoot is termed "heading." Removal of a branch at a fork is called "thinning." Heading increases the number of branches, making a tree more dense, while thinning reduces the number of branch points and lets more light into the tree. Mature bearing trees generally are pruned using a mixture of these cuts. Varieties that branch extensively, such as Corum, need more thinning than heading. Trees that have been headed to cause branching may become so dense by the eighth or tenth year that inner wood dies due to insufficient light penetration. Thin out a few branches before this happens, but avoid overpruning of young bearing trees. Concentrate pruning on the outer and upper parts of the tree in order to keep lower wood productive. Distribute some cuts throughout the tree to stimulate new growth. If necessary, reduce the height of mature bearing trees by cutting upper limbs back to side limbs. On mature trees low in vigor, use a combination of heading and thinning cuts to invigorate the remaining bearing wood. Cut weak, drooping branches severely to stimulate new growth.

Mechanical topping of mature trees saves time and money in the year in which it is performed. It is a quick and easy way to reduce the height of overly tall trees. Mechanical topping stimulates growth in the area of cutting but has little effect on the rest of the tree. Usually a forest of new shoots develops in the treetop, and this must be thinned out before it shades out the lower bearing wood. Much of the savings gained in the year of topping are lost in the thinning required in the following season.

Paint all pruning wounds more than 2 inches in diameter with a suitable wound paint, preferably with polyvinyl acetate base. This is important to prevent heartwood rot, especially in humid districts.