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CHERRIES FOR KENTUCKY

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The cherry has been one of the most satisfactory fruits grown in the yard or garden in Kentucky and the trees around homes have



supplied the needs of the community. During recent years, however, a marked decline in production of cherries occurred. The de-

cline in cherry trees in Kentucky came largely because adequate control measures against cherry leaf spot were not practiced. Leaf spot is a disease which causes the leaves to turn yellow and fall during July and August and trees may be severely weakened or killed by the trouble if they are not properly sprayed. The cherry grows and produces as well as any of the other fruits that are commonly grown in Kentucky, but if satisfactory returns are to be had, attention must be given to the operations of spraying, fertilizing and pruning. It requires 6 to 8 years after a tree is planted before a sizable crop will be produced and in view of the declining number of trees in the state and the reduction of the crop that has occurred, cherry growing should be revived.

WINTER INJURY

Cherries differ considerably in their ability to withstand winter cold and spring frosts. In general the sweet cherry is more susceptible to injury than the sour. The experience in Kentucky has been that the sour varieties are much more satisfactory than the sweet, and that the trees live longer. Late winter or early spring killing of the fruit buds is the most common injury. The sweet cherry especially is subject to this trouble because the buds are tender and bloom early. Sour cherries bloom later than the sweet and tho their fruit buds, in certain stages of development, are easily injured, usually they produce some fruit every year, if favorably located.

SITE

To avoid conditions favorable to injury from frost a site should be chosen more elevated than the surrounding area. This provides air drainage. The temperature difference provided by an elevation of only 20 feet may determine the success of an orchard. For the small home orchard or for backyard trees little attention can be given to the choice of a site. Under all conditions low-lying areas where cold air collects should be avoided.

SOIL

The ideal soil for cherries is a deep, fertile, well-drained loam. Good drainage is essential, and deep rooting is one of the prerequisites to heavy production and long life of the trees. Sour cherries are more tolerant of adverse soil conditions than the sweet, but for either kind the lighter soils are preferable to the heavy and usually poorly drained clays.

VARIETIES

Sour Cherries. The Montmorency is the most important variety. Early Richmond is grown because of its early ripening. Both varieties are self fertile and bear when planted alone.

Sweet Cherries. Black Tartarian, Governor Wood, Yellow Spanish, Napoleon (Royal Ann), Schmidt and Windsor are the principal varieties. Most varieties are self sterile, hence at least two and preferably three should be planted together to insure pollination.

Duke Cherries. The Dukes are hybrids of the sweet and sour cherry and the tree and fruit usually are intermediate in character. The May Duke is the most important variety. The Dukes should be planted with either sweet or sour varieties to insure pollination.

PLANTING

In general, 2-year-old trees are more commonly used than 1-year-old, but if 1-year-old, vigorous trees can be purchased their cost is usually less. Regardless of where the trees are purchased it is economy to get only the best nursery stock. Planting in late November or early December is recommended for Kentucky. A better stand and more growth the first season generally results from fall-set trees.

Planting distances vary with different varieties and soils. In general, sour varieties and Dukes should be set 25x25 feet. Sweet varieties grow larger and should be spaced about 30 feet apart. In setting the trees ordinary care should be used. Neither fertilizer nor manure should be mixed with the soil that is placed in the hole around the tree.

STOCKS

Two different stocks are in use in the propagation of the cherry. These are the Mazzard and Mahaleb. Both sweet and sour varieties may be grown on either of these stocks. Experimental work done in other states, particularly in New York and Tennessee, indicates that the Mazzard stock is more satisfactory for both sweet and sour varieties. The results show that the trees grow larger, live longer, and bear heavier crops when grown on Mazzard than on Mahaleb stocks. The Mahaleb stocks grow satisfactorily on a wider range of soils and withstand extremes of temperature better than Mazzards.

The cost of trees grown on Mazzard roots is somewhat greater because the Mazzard seedlings are more susceptible to leaf spot than the Mahalebs and consequently more careful attention to spraying

has to be given. After the trees have been budded and the desired variety is growing on Mazzard roots there is no reason for believing that leaf spot should then be more serious than if the trees were on Mahaleb roots.

The experimental work in Kentucky with sour varieties on Mazzard stocks has not progressed far enough so that definite recommendations can be given as to the better one to use. The experience of those growers who have found their trees short-lived, in spite of the fact that they have sprayed carefully and have controlled leaf spot, seems to indicate that the short life of the trees often was due to the stocks upon which they were growing.

CULTURE AND FERTILIZATION

In Kentucky, where the growing season is long, cherry trees thrive better than most other tree fruits, in sod. However, because of their habit of producing part of their fruit on shoots of the past season's growth in addition to the amount formed on spurs, an abundant supply of available nitrogen in the soil is important. Most of the successful commercial cherry orchards are cultivated and the application of nitrogen fertilizers usually is profitable. If trees are growing in sod the use of nitrogen fertilizers is required for maximum crops and good fruit size. For sod management a legume crop such as clover, alfalfa, sweet clover or lespedeza is preferred to bluegrass. If bluegrass or weeds crowd out the legume it is considered best to break the sod and reseed.

When cultivation is practiced the land should be plowed in the spring, before the cherries bloom. Early plowing enables soil to warm up more rapidly. Cultivation should be continued thru the early summer and a quick-growing cover crop as oats, buckwheat or soybeans should be sown soon after the fruit has been harvested. Cultivation is desirable because the trees make a heavy demand upon the soil for moisture and nutrients thru the early summer. The processes of blooming, fruit setting, fruit-bud formation, vegetative growth and even the ripening of fruit all take place within eight to ten weeks and competition from cover crop during this period may have a detrimental effect upon the trees. The best cover crop is one which produces much green material to serve as a soil cover and add organic matter when turned under. If the vegetation is not sufficient to prevent soil washing during the winter, rye or barley may be sown about September 1.

Either nitrate of soda or sulfate of ammonia may be used to furnish additional nitrogen. The material should be scattered on the surface of the ground underneath and a short distance beyond

the drip of the branches. There is no need of placing any of the fertilizer close to the trunk. The application should be made in the spring, a week or ten days before the blossoms open. The condition of the trees and soil determines the amount to use. For young trees not yet in bearing one-half to one pound per tree is sufficient. For large, bearing trees three to six pounds for each tree usually is profitable. If barnyard manure is available it serves excellently.

PRUNING AND TRAINING

Proper pruning at the time of setting the tree is important. This is done principally to balance the evaporating surface of the top with the relatively small absorbing area of the root system. If one-year-old trees have been used they are straight whips and should be headed back to a height of 24 to 36 inches. Two-year-old trees which have numerous side branches should have all but three to five of the strongest and best distributed ones removed. Those remaining should then be headed back to a distance of one-third to one-half their length. Sour cherry trees are trained to an open center, while the natural growing habit of the sweet cherry makes it suited to the central leader type of tree.

Heavy pruning while the trees are young is objectionable because it stunts the growth and delays bearing. After trees have borne for several years, however, they decrease in vigor and unpruned trees become thick and bushy and sunlight does not reach the centers. The bearing area of old unpruned trees is on the outermost parts of the limbs and the branches in the center gradually weaken in growth and eventually die. Trees of this type frequently break down from the weight of the crop. To avoid this condition it is advisable to do enough pruning each year so that the top will be kept fairly open. Removal of thickly growing or interfering branches can best be done while they are small. This avoids the necessity of heavy cuts in later years.

The open-center tree usually is somewhat lower than one which is allowed to become dense and, furthermore, the fruiting wood has a better distribution thruout the whole top. It is of interest in this connection that fruit coloration in the cherry is not dependent upon direct sunlight; however, the formation of fruit spurs and of fruiting buds is influenced by it.

HARVESTING

The best guides to the proper degree of maturity of the fruit for harvesting are color and flavor. Sugar content and color intensity increase very rapidly during the latter stages of ripening and

the weight of the fruit increases considerably. Many fruits continue to increase in color and in flavor after harvesting, but cherries do not. For this reason it is distinctly advantageous to leave them on the trees until fully ripe. Unless the fruit is to be used immediately for canning, it should be picked with stems attached. When the stems are pulled from the fruit the tissues are broken and molds and rots develop quickly.

DISEASES*

Leaf Spot. Cherry leaf spot is the chief limiting factor to cherry production in southern States. The seriousness of this disease cannot be overemphasized because, if it is not controlled, the trees are short-lived. The disease lives over winter in old leaves on the ground and the first infections come on the new foliage early in the summer. The seriousness of the trouble is determined by climatic conditions, wet weather being necessary for the development of the disease. The trouble first appears on the leaves as very small dark spots no larger than a pin head. These increase in size and become purplish, except at the center. The entire area of the spot finally turns brown and the dead tissue drops out forming a hole in the leaf. Some of the affected leaves turn yellow and drop from the tree. The loss of leaves greatly lowers the vitality of the trees and affects the size, color and quality of the fruit the following year. In addition to this the trees become weakened and are unable to form fruit buds for the next year's crop. Undoubtedly the most serious damage is to the vitality of the tree. If it reaches the end of the growing season in a weakened and devitalized condition, the wood does not mature properly and is susceptible to winter injury.

Spraying is the practical control for leaf spot in commercial orchards, but in dooryard plantings considerable benefit can be gained by raking and burning all leaves as they drop during late summer and fall.

Brown Rot. This may affect the fruit under certain conditions. Wet weather and high temperature favor the development of this disease, and it is much more likely to be serious on sweet than on sour cherries.

INSECTS

Plum Curculio. This insect may be the cause of wormy cherries. The adult weevils feed on the fruit and make crescent-shaped

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marks where the eggs are layed. The larvæ which develop in the cherries are yellowish-white, legless grubs about $\frac{1}{3}$ inch in length. Another pest which may be found in cherries and is sometimes confused with the curculio is the larva of the oriental fruit moth. This grub, however, has legs, crawls more rapidly and has a pinkish color.

Scale Insects. These have rarely been destructive to cherry trees in Kentucky, but are more likely to be found on sweet than on sour varieties. The San Jose scale is sometimes a pest of sweet cherries, but rarely of sour cherries, whereas the cherry scale (Forbes scale) is sometimes abundant on sour cherries, but rarely found on sweet varieties.

Cherry Aphis. This pest is a large, shiny black plant louse. It frequently becomes abundant on cherries in the spring. It is less commonly found in late summer and autumn.

Slugs. These insects are small, dark green, slimy larvæ about $\frac{1}{2}$ inch in length. The adult of this pest is a four-winged, moth-like insect slightly larger than a house fly. There are two generations in a year; the first shortly after blooming time, and the second in late summer or fall. Slugs skeletonize the leaves of the cherry and are also known to attack pears and plums.

Bark Beetle. Gummy masses on the branches indicate that this pest is present. The adult beetle is about $\frac{1}{10}$ inch in length and of a dark brown color. The full-grown larvæ are about $\frac{3}{16}$ inch in length, whitish, and work entirely underneath the bark, but their presence may be noted by numerous small exit holes in the bark. The insect is known to work freely on peach, plum, cherry, apricot and apple. To avoid infestation by bark beetles the trees should be kept in a vigorous condition by cultivation and the use of nitrogen fertilizer.

CHERRY SPRAY SCHEDULE

TIME:	USE:	FOR:
1. Dormant	Oil emulsion Lime-sulfur	2% of oil; or, 1-8.
2. Petal fall: Apply as soon as most of petals have fallen. Complete by time shucks start to fall	Lime-sulfur Lead arsenate Hydrated lime Water	1 gal. 1½ lbs. 3 lbs. 50 gals.
3. Two weeks after petal fall	Same as No. 2	Leaf spot Curculio Slugs
4. Four weeks after petal fall	Lime-sulfur Water	1 gal. 50 gals.
5. Immediately after harvest	Same as No. 4	Leaf spot Brown rot
		Same as No. 2
		Leaf spot Brown rot
		Leaf spot

NOTE.—Dry lime sulfur may be used in place of the liquid at the rate of 4 pounds to 50 gallons of water, for the summer sprays. Bordeaux Mixture, 3-4-50, is the most effective spray for leaf spot but may be used only on sour varieties. If Bordeaux is used on sour cherries, spray No. 4 may be omitted. Additional sprays probably will not be necessary unless growth continues and the season is wet.

