



Department of Horticulture

Purdue University Cooperative Extension Service • West Lafayette, IN

Growing Cherries In Indiana

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Site Selection

Cherry trees will grow on a wide range of soil types, if the soil is well drained. Avoid soils that are very heavy and that remain wet for extended periods. Also, avoid droughty soils that dry out excessively, unless supplemental water is supplied regularly, especially in the early years.

Cherry trees bloom early in the spring. Sweet cherries bloom earlier than tart cherries, so they are more susceptible to early spring frosts. Locate the planting on an elevated site to avoid frost pockets and injury to fruit buds.

Commercial cherry growing in Indiana is limited by the climate. Tart cultivars do not thrive where summers are long and hot, while sweet cherry cultivars will not tolerate winters as cold as tart cherries will. Sweet cherries are also susceptible to rapidly fluctuating winter temperatures. Tart cherries are better adapted to the northern 2/3 of the state, while sweet cherries are adapted only in areas that are protected from extreme cold and from rapid fluctuations in winter temperatures. In most areas of the state, sweet cultivars cannot be regarded as reliable producers of fruit, and trees are difficult to establish and maintain. Trees on urban sites are usually more reliable producers than trees in rural areas because the winter temperatures are usually not as cold in urban areas.

Planting Trees

Traditionally, cherry trees grew very large and had to be planted far apart to allow for their full size. Tree spacing was 20-24 feet apart for tart cherries and 25-30 feet apart for sweet cherries. Cherry trees in the past were slow to come into bearing, requiring 5-8 years to reach reasonable production.

A new series of rootstocks is now available for cherries. These rootstocks, called the Gisela® series, will prevent

the tree from growing as large and also encourage cropping earlier in the life of the tree compared with traditional cherry trees. The most dwarfing rootstocks (Gisela® 1 and Gisela® 5) will produce trees 25-40% the size of those on Mazzard (traditional rootstock), but these smaller trees need to be staked. Gisela® 7 and Gisela® 6 produce trees 50-60% the size of those on Mazzard, and also benefit from staking.

Plant well grown 1-year-old nursery trees in the spring as soon as the ground can be prepared. In southern Indiana, trees can be planted in either late fall or early spring, but spring planting is more reliable.

Handle trees carefully before planting to prevent roots from drying out. Keep them moist at all times. A bucket or barrel filled with water will help to keep trees in good condition during the planting operation. If trees must be stored before planting, they should be "heeled in" in a trench located in a cool area. Be sure roots are covered with sawdust or soil and kept moist.

The planting hole for the tree should be large enough to accommodate the root system without crowding or bending roots. The tree roots should be pruned to remove all injured or broken roots. If roots are too long, prune them back rather than bend them to fit the hole, or, better yet, enlarge the hole.

Set the tree at the same level as it grew in the nursery, filling the hole carefully with topsoil. Settle the soil carefully and firmly around the roots to avoid air pockets. When the hole is 2/3 full, water thoroughly, then finish filling with topsoil. Water as needed during dry periods throughout the first year.

In home plantings, where fill dirt and/or subsoil may form the lower layers of the planting site, extra care should be taken to provide good soil drainage. The soil removed from the hole should be well mixed to provide a uniform soil throughout the rooting volume.

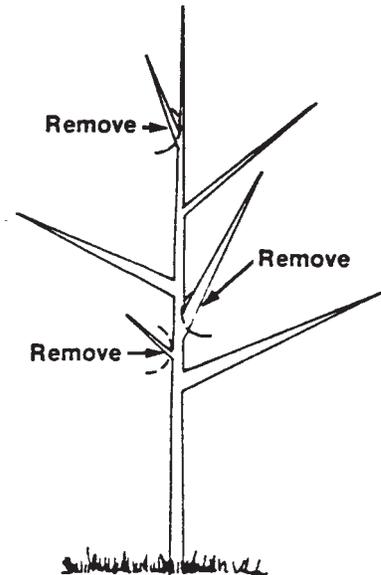


Figure 1. A 1-year-old cherry tree trained to the modified leader system. Note the spacing of branches and the type of branches which should be removed at planting time. The leader is "modified" in later years by cutting it back as it approaches the desired height.

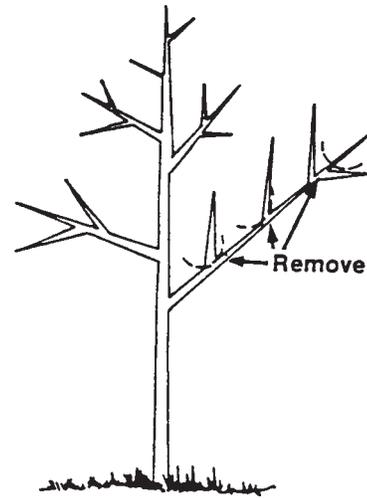


Figure 2. A 2-year-old cherry tree showing scaffold placement and the minimal pruning necessary to maintain balanced growth.

Training Trees

The modified leader system of training is preferred for cherry trees (Figure 1). This system produces a central trunk with lateral scaffold branches arising directly from this trunk. Tart cherry trees tend to be spreading, naturally forming a wide crown suitable for good production without extensive training. The sweet cherry forms a more upright head with tall limbs which will need to be pruned back in later years.

Pruning of all young cherry trees should be as light as possible until the tree comes into production. Mature cherry trees, both sweet and tart, require little pruning except thinning of weaker branches and occasional heading back of laterals to keep the tree within the allotted space. Heading back should always be done by cutting to a strong lateral branch. Stubs should be avoided. Dead or broken branches should be removed promptly.

Tart Cherries

As purchased from the nursery, tart cherry trees are usually well branched. At planting time, remove all branches that form narrow angles with the central leader (Figure 1). If available, select three or four wide-angled branches as the major scaffold branches. The lowest of these should be at least 16 inches from the ground to make it easier to work around the tree. The others should ideally be spaced at least 6 inches apart on the trunk and equally spaced around the main trunk.

The branches should all be cut back to about the same length. If the nursery tree is large, the main stem may be reduced in length, but the stem should never be shorter than the longest scaffold branch. Frequently, it is better to prune all laterals to one bud if they are weak and to develop a new scaffold system.

For the next few years, prune only to select additional scaffolds until about six are obtained (Figure 2). If some branches are overly vigorous, they can be shortened to maintain uniformity of growth throughout the trees. A strong, symmetrical structure will help the tree support heavy croploads and wind pressures. Do not prune more than necessary in these early years, since pruning is a dwarfing influence and will delay the tree's bearing. After the tree comes into production, the leader can be suppressed if desired by cutting back to a strong outward growing lateral. This will help prevent the tree from getting too tall.

Sweet Cherries

Young sweet cherry trees are trained much like tart cherries, except that nursery trees are usually unbranched and tall. Cutting back the stem to 30 inches will force lateral growth, and from these laterals, desirable scaffolds should be selected. If this selection is done early during the first summer, leaving laterals 8-10 inches apart, most of a summer's growth can be gained. Since the growth habit of the sweet cherry is upright, care should be taken to keep the tree from becoming too tall. Some tipping of scaffold branches may be necessary to maintain balanced growth.

Cultural Practices

For the first 2-3 years, the soil around cherry trees should be cultivated, mulched, or kept clean with chemical weed control. In commercial orchards this cultivation may cover the entire orchard floor, or it might be restricted to a 4-6 foot wide strip down the tree row. If the entire orchard is cultivated, then to prevent erosion a cover crop of rye or other small grain should be planted in the autumn.

In many commercial plantings and in most home gardens, as the cherry trees mature, the ground around them is sodded with bluegrass or fescue, with an area 1-3 feet square immediately around the trunk maintained weed-free by cultivation or chemical weed control.

Cherry trees grown on fertile soils usually require only nitrogen fertilizer. The amount of fertilizer needed is based on the amount and character of tree growth. The terminal growth of each branch should range from 6-15 inches in length. Trees should maintain good foliage until fall, then drop their foliage when frosts arrive. If trees maintain green foliage too late in the fall, this is an indication of excess vigor, which may result in early winter damage to tree trunks or to fruit buds. Because of differences in soil fertility, as well as soil type and climate, specific amounts of fertilizer are difficult to give. As a general guide, apply about 0.1 pound of actual nitrogen per year of tree age to a maximum of 1 pound of actual nitrogen per tree.

For example, a 10-year-old tree might receive 3 pounds of 33.5 percent ammonium nitrate, which would provide 1 pound of actual nitrogen. Occasionally, cherry trees respond to applications of potassium, and then a complete fertilizer such as 15-0-15 or 12-12-12 may be used if desired. A soil sample will provide more accurate guidelines for fertilization, and commercial growers may use foliage analysis for even better guidelines.

The fertilizer should be applied in a broad band around the tree, extending from about a foot from the trunk to the drip line of the branches. If trees are grown in sod, additional nitrogen or a complete fertilizer may be necessary to adequately supply both the sod and the cherry trees. Amounts should be adjusted to obtain satisfactory tree growth and may be up to double the rate suggested.

Painting tree trunks and lower portions of the scaffold branches, at least on the south and southwest sides, with white exterior latex paint will help to minimize damage to the trunk.

Cherry Cultivars

Tart Cherries

Tart cherries are self-fertile (tree produces fruit with its own pollen), and pollinizers (other cultivars which provide pollen) are not required. Therefore only one tree or one cultivar is necessary for satisfactory fruit production. Bee activity will help provide better pollen movement and thus may provide better cropping when pollination conditions are marginal.

Montmorency. This is the most important tart cherry cultivar grown in the United States. Its fruit is large and medium red, with tart, firm, light colored flesh of good quality, and the juice is clear. The trees are medium to large, very productive and vigorous, with spreading growth habit. There are several strains of this cultivar, all with similar characteristics but varying in time of ripening, fruit size, color, or tree vigor. This is the only tart cherry cultivar universally recommended and widely successful in all areas of Indiana.

Early Richmond. This cultivar ripens 7-10 days before Montmorency. Its fruit is light red, of small to medium size, and of only fair quality, and the juice is clear. Trees are medium sized and only moderately productive. Their growth habit is spreading. This cultivar is being replaced by early ripening strains of Montmorency and is no longer recommended.

Balaton. This new variety from Hungary ripens a few days after Montmorency. The fruit is firmer and sweeter than Montmorency, but the trees may be slightly more winter tender.

English Morello. This cultivar's fruit ripens 10-14 days after Montmorency, and fruit is tart, medium sized, very dark red, with red flesh and high quality. The juice is red. The trees are not vigorous and are spreading in habit. This cultivar is not recommended except where cherry leaf spot can be well controlled and where a late cultivar is particularly needed.

Meteor. A winter-hardy cultivar developed at the University of Minnesota, Meteor's fruit is small and red, with clear juice and good quality. This tree is semi-dwarf with rather upright habit, and it is not very productive. It is not fully tested in Indiana and is recommended only for trial where hardiness is a critical factor.

North Star. Another cultivar developed at the University of Minnesota, North Star's fruit is very small, of the Morello type. The tree is very dwarfed and is reputed to be very hardy. It is not fully tested in Indiana and is recommended for trial only where hardiness or tree size is a critical factor.

Sweet Cherries

Many cultivars are available, but only a few are hardy enough to be suitable for planting in Indiana. Sweet cherries (except for Stella) are self-incompatible, so two or, preferably, three cultivars must be planted together to insure adequate cross-pollination. Furthermore, some groups of cultivars are cross-incompatible. Thus, members of the same group will not cross-pollinate each other. For example, Bing will not pollinate Lambert or Napoleon, etc. The cross-incompatible groups include:

- a) Bing, Lambert, Napoleon, Star, and Emperor Francis
- b) Windsor, Van, and Venus
- c) Viva, Hedelfingen, and Vista.

Select cultivars from at least two different groups or from outside these groups to be assured of cross-compatibility. Some of the more common varieties, listed in order of maturity, are:

Sam. A recent introduction from Summerland, B.C., Sam has dark mahogany, large, firm, good quality fruit. The tree is vigorous and hardy.

Napoleon (Royal Ann). This is a widely grown midseason cultivar. Its fruit is large and yellow with pink blush. It is firm but tends to crack badly. The tree is hardy and productive, except that it is susceptible to early fall freeze damage. It may tend to become overproductive, resulting in small fruit and biennial bearing (production in alternate years).

Rainier. This is a new cultivar from Prosser, Washington. Its fruit is yellow with considerable pink blush, firm, and of high quality. The tree is vigorous and as hardy as Van. Rainier is a good pollinizer for Van and Sam.

Emperor Francis. The fruit is light yellow with red blush, firm, large, crack resistant, and of good quality. The tree is productive and hardy.

Schmidt. The fruit is large, very dark mahogany, firm and high quality. It is relatively crack resistant. The tree is hardy, but blossom buds are relatively tender. Schmidt tends to be a poor producer. It is a good pollinator for Napoleon.

Lapins. Fruit are large, firm, and very dark red. Flowers are self-fertile and it is a good pollenizer for other varieties.

**Assistant Professor and Professor Emeritus, respectively*

Stella. The first self-fertile sweet cherry, Stella's fruit is dark, medium sized, firm, and of good quality. The tree is vigorous, precocious, and moderately hardy. It is a good pollinizer for any other cultivar and will produce fruit without another cultivar for pollination.

Hedelfingen. Fruit is dark mahogany and of good quality. Trees are large and productive but of only moderate hardiness, susceptible to fall freezes.

Van. Fruit is dark mahogany, sweet and firm, with excellent quality. The tree tends to produce early, bearing commercial crops after 4-5 years, and is very productive (may tend to overproduce with small size and biennial bearing). Van is a standard of hardiness and should be tried in Indiana orchards. It is a good pollinizer for Napoleon and other cultivars.

Windsor. The standard late ripening cultivar in the eastern U.S., the fruit is dark mahogany, medium sized, tender, and of fair to good quality. The tree is hardy and productive, with good bud hardiness.

Gold. Gold ripens later than Emperor Francis. Its fruit is lemon yellow with no blush, small, resistant to cracking, and of good quality. The tree is vigorous and very winter hardy, with hardy fruit buds. It is very productive and worthy of trial where fruit size is not a factor.

Duke Cherries

The Duke cherries are hybrids of sweet and tart cherries. They are losing popularity to hardier sweet cherries and more productive tart cherries. The Duke cherries are not recommended.

Disease and Insect Control

A thorough disease and insect control program is essential to insure productivity and high fruit quality. Cherry leaf spot and brown rot are the most serious diseases. Cherry aphids, plum curculio, and cherry maggot are the most common insect pests. Specific pest control recommendations are in the publications ID-168 (Indiana Commercial Tree Fruit Spray Guide) and ID-146 (Controlling Pests in Home Fruit Plantings).

For more information on the subject discussed in this publication, consult your local office of the Purdue University Cooperative Extension Service.
