Michigan State University Extension
Home Horticulture - 03900037
01/01/96

WHY FRUIT TREES FAIL TO BEAR

Young fruit trees will begin to bear fruit after they become old enough to blossom freely. The health of a tree and its environment, its fruiting habits, adequate pollination, variety, rootstock, and the cultural practices used will influence the tree's ability to flower and produce fruit. If just one of these conditions is unfavorable, yields may be reduced.

It is important to maintain healthy trees free from insects and diseases. Most diseases and insects can be controlled through PERIODIC applications of an "All-Purpose Fruit Spray". These sprays are mixtures of fungicides and insecticides, and are effective against most fruit tree pests.

Some fruit trees, especially some apple varieties, produce abundant crops one year and sparsely the next. This 'biennial bearing' of fruit trees can be modified to obtain annual production by early and heavy fruit thinning during years of heavy fruit set.

Fruit trees need full sunlight for best production, and care should be taken to avoid placing trees where they are shaded by buildings or other trees. To reduce competition from weeds, it pays to cultivate, mulch, or use weed killer. To develop a desirable form and to remove excessive growth and dead or diseased branches, trees should be pruned. Developing fruit and foliage should be protected from insect and disease damage throughout the season.

The length of time from planting to fruit bearing varies with the type of fruit tree. Trees that grow at a moderate rate generally bear fruit sooner than either fast- or slow-growing varieties. Rootstocks also influence the date of bearing.

The following chart lists the ages, from planting, at which trees may begin to bear fruit:

TREE TYPE	TIME IN YEARS	TREE TYPE	TIME IN YEARS
Apple	3-5	Peach	2-3
Apricot	2-4	Pear	4-6
Cherry, sour	3-5	Plum	4-6
Cherry, sweet	5-7	Quince	5-6

Please note that dwarf apple and dwarf pear trees may begin to bear one to two years earlier than standard-size trees.

Winter climate may have quite an effect on the fruit trees. EXTREME cold during winter dormancy may kill the flower buds and occasionally the branches. Fortunately, winter weather rarely threatens hardy apple, pear, plum, and sour cherry varieties, although sweet cherries are relatively sensitive to cold until they become dormant. Peach trees are VERY VULNERABLE to cold weather. Their buds can be killed by mid-winter temperatures near minus 10 degrees Fahrenheit. As the flower buds grow and open, they become more susceptible to injury from frost. The exposed buds can usually withstand temperatures near 24 degrees Fahrenheit, and the open blossoms of practically all fruit trees will be killed at temperatures below 27 to 28 degrees Fahrenheit. When a heavy frost is expected, covering the tree will sometimes prevent bud or blossom injury, provided the temperature does not fall too low and that the cold weather is of short duration. Polyethlene sheets or plastic bags are usually effective in covering trees, but cheesecloth and even old bed sheets may also be used.

Fruit trees require pollination for fruit formation; without sufficient pollination, trees may blossom abundantly but they will not bear fruit.

Some species of fruit trees have both anthers, which contain the pollen; and pistils, which develop into fruit, located in the same blossom. These blossoms are known as perfect flowers. It they bear fruit as a result of pollination from their own anthers, these trees are called "self-fruitful." Examples of self-fruitful types include: the sour cherry,

the apricot (except Perfection and Riland varieties), the peach (except J.H. Hale and several others), several European-type plums (like Stanley, Green Gage, and Italian Prune), and quince.
Many types of fruit trees with perfect flowers cannot produce fruit from their own pollen. These require pollen from another variety, so two or more varieties should be planted next to each other. "Self-unfruitful" types include: many apple, pear, and sweet cherry trees and many Japanese and American plum trees.

Some species of fruit trees have more complicated flowering. These species have male trees that produce pollen and female trees that produce fruit. To grow them successfully, it is necessary to plant at least one tree of each gender near each other.

When planting apple trees, to ensure fruiting plant at least two varieties for pollination. Avoid planting poor pollen-producing varieties such as: Baldwin, Gravenstein, Winesap, Staymen and Rhode Island Greening. If planting these varieties, plant at least two other varieties with them to insure adequate pollination.

Sweet cherry varieties within certain groups should not be planted together without a pollinizer. For example: Bing, Lambert and Napoleon (Royal Ann) cherry varieties DO NOT pollinate each other, so they should be planted with the Windsor variety, or with a sour cherry like Montmorency nearby.

Many varieties of pears are completely or partially self unfruitful. For adequate pollination, at least two varieties should be planted together. There are some exceptions to consider when planting pears, such as: the fact that Bartlett and Secket pears will not pollinate each other and that the Magness and Waite varieties are pollen-sterile. Despite these few exceptions, other pear varieties will cross-pollinate each other.

Since many varieties of Japanese and American plums are self unfruitful, it is advisable to plant two or more varieties together.

REFERENCE:

J. Hull and D.M. Jones
Department of Horticulture
Michigan State University