

Fruit Trees: Failure To Bear Fruit

Fruit trees frequently grow well and appear to be very healthy, yet they fail to flower or set fruit. The purpose of this article is to point out some of the factors that may contribute to this lack of productivity.

Trees Do Not Flower

Slowness to produce flowers. Apples, pears and sweet cherries by their inherent nature do not normally flower until they are several years old. Peaches, tart cherries and plums usually flower at an earlier age. Therefore, the lack of flowering is often a characteristic of a tree. Some trees propagated on seedling or nondwarfing rootstocks may require 8 to 10 years to produce significant numbers of fruit.

Lack of dwarfing rootstocks. There are commercially grown rootstocks available (trees grown specifically to serve as the root system of a tree on to which a desired variety is propagated) that make trees grow small, then flower and set fruit at a very early age. The most common dwarf rootstocks for apples are M.9 and Bud 9 but it may be difficult to find them at a garden center. Trees on these rootstocks may flower and set fruit after 2 to 3 years. More often you will find trees that are labeled semi-dwarf. Trees propagated on this group of rootstocks are more vigorous and produce fruit only after several years in the ground.

Excess vigor. If trees are allowed to grow too rapidly, flowering will be delayed. The two most likely causes of excess growth are too much nitrogen-containing fertilizer and excessive pruning. It is difficult to give a specific fertilizer recommendation since there are many soil types and the range in inherent fertility in soils is large. Perhaps the best way to determine the amount of N-containing fertilizer is to look at the terminal growth from the previous year. If terminal growth exceeded 18 to 20 inches then either reduce the amount that you applied last year or completely eliminate it. The more severely you prune a young tree the longer it will take to produce flowers. Small cuts into 1-year-old wood (heading cuts) should be completely avoided. Larger cuts should be made only to maintain the dominance of the central leader of the tree and to prevent limb competition. On young trees, very little pruning should be done, and very little is all that is normally required.

Biennial Bearing. Many fruit trees have the inherent characteristic of flowering every-other-year. This is usually most prominent on apples and pears. Fruit trees form flowers for a crop the previous year. If too many fruit set on a tree they will inhibit flower initiation and development for the next year. On young trees, it requires relatively few fruit to bring about this inhibition of flowering. As trees get older, this biennial bearing tendency may be less prominent on some varieties, but on others it will remain a significant problem. Regular flowering can be achieved by applying hormone thinning sprays in the heavily flowering years between petal fall and when the fruit are about 1/3 inch in diameter. Hand removal of fruit when they are 3/4 inches in diameter is also an option, but it is very labor intensive.

Trees Flower But Do Not Set Fruit

Lack of pollinizers is a common reason for fruit to fail to set and develop into mature fruit. What are pollinizers? Many trees require pollen from another variety of the same fruit to get adequate set. For example, a McIntosh apple will not set an adequate number of fruit if only McIntosh pollen is available. If another variety such as Delicious is close by, it may serve as a source of pollen for the McIntosh and the McIntosh can serve as a source of pollen for the Delicious. Pollen from an apple tree is viable on another apple tree but not on any other type of fruit.

Not all Fruit Require Pollinizers. A common dilemma for those purchasing fruit trees is knowing which fruit require a pollinizer and which do not. Listed in *Table 1* are general guidelines for pollinizer requirements for the most common tree fruit.

How far away should pollinizers be? Bees are the usual agents that carry pollen from one tree to another. The further away a pollinizer is from the tree to be pollinized, the less likely a bee will be carrying pollen from the pollinizer. In commercial orchards, growers attempt to have a pollen source no further away than 100 feet. As distance increases beyond 100 feet, there is a progressive reduction in fruit set that can be directly associated with a lack of pollination

Pollinizer selection. A pollinizer is required for the main variety and one also for the pollinizer; thus under most circumstance, at minimum, two trees are required. There are other factors that influence the availability of pollen that may make the selection of a third variety an appropriate choice. Commercial orchards generally have a main variety where pollinizers are added to get good fruit set on the main variety. In this case, one pollinator variety is usually planted for each 8 to 9 trees of the main variety.

Tree Age. Even though young trees may flower, it is very common for them not to set very many fruit. This is normal and more consistent cropping should soon follow.

Vigorous or Excessive Growth. Vigorous growth not only inhibits flowering but it also reduces fruit set. Factors that slow growth on a vigorous young tree should also enhance fruit set.

Table 1. Requirements of the need of a pollinizer tree for fruit trees.

Fruit	Pollinator required
Apple	Yes
Pear	Yes
Peach	No
Tart cherry	Usually no
Sweet cherry	Yes
Japanese plum	Yes
European plum	About half
Apricot	No

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