

WHY IS THERE NO FRUIT ON MY TREE?

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How many times have you or someone you know planted a fruit tree in anticipation of harvesting fresh, juicy tree-ripe fruit in your own backyard?

Probably more times than you care to count. Home fruit production can be both rewarding and troublesome. One of the most common questions is why trees fail to bear fruit or only have fruit every other year. This information was prepared to answer this question and to give you possible solutions to the problem.

Undoubtedly in the backyard situation the number one reason for failure of trees to bear fruit is improper tree vigor. Over vigorous trees expend all their energy in growing wood and do not produce flower buds. Typically, this occurs for two reasons: over-fertilization and over-pruning. Heavy applications of nitrogen will stimulate excessive growth at the expense of flower production.



Figure 1. Example of an overly vigorous apple tree.

You say you do not fertilize the trees? But, do you fertilize the lawn surrounding the trees? Fruit trees do not know that you are applying nitrogen only for the grass. Rain can move the nitrogen down past the grass roots where the trees can take it up. The solution - do not apply extra fertilizer to the lawn within 5 feet of the spread of the tree's branches. Be careful, because under fertilization can also occur. The

need for fertilizer in the home orchard should be based on soil test results and annual shoot growth. Bearing fruit trees should average 12 to 18 inches of shoot growth per year. Nonbearing young trees should average 18 to 30 inches. If your trees have less growth than this, then increase the nitrogen rate by 25% the next spring. If they have greater amount of annual shoot growth it would indicate either you are over pruning or over fertilizing.

If you have too much growth and you are not fertilizing too heavily, you may be over pruning. Heavy winter pruning will also stimulate excessive growth. Fruit trees should be pruned each winter. However, indiscriminate heading cuts will delay flowering and fruiting. Heading cuts are the main culprit.

Apples and pears need to be pruned differently than peaches and other stone fruits. Before pruning your trees make sure you know where the tree produces flowers and how to prune to encourage flower production. In general, thinning out cuts (those that remove an entire branch back to its point of origin) are less stimulating and encourage more flower production. Heading cuts (the removal of a portion of the branch) will stimulate more vegetative growth and delay flowering. In extreme cases continual heading cuts will totally prevent flowering in apples and pears. Peaches need a combination of heading and thinning since they produce flowers on 1 year old wood.

The second leading cause for lack of fruit production is frost damage. The flowers of fruit trees are very sensitive to late spring frosts. Temperatures much below 29 degrees F will prevent fruit formation. The frost does not have to occur during full bloom for the damage to occur. Once the flower buds begin to swell and develop there is a risk of frost damage. You may not even see the damage, because the flowers may open normally but be unable to set fruit. If you suspect that you have had a frost wait till the following day to examine the flowers. Dark brown to black centers will probably not set fruit that year.



Figure 2 Healthy apple flower note green pistils



Figure 3 Leaf damage from frost



Figure 4. Growing tip damage from frost

The solution - plant fruit trees on the most frost free section of your land. Look for areas that are either close to the house or slightly elevated. Do not plant trees in low areas of the yard. Plant fruits and varieties that are adapted to your area. Apricots are usually not very successful in the home orchard because they bloom too early and their flowers are killed by spring frosts. Cherries are next to bloom followed by plums, pears, peaches and apples. If you have consistent late spring frosts then plant trees that bloom later. There are also differences within varieties. For example, in apples McIntosh bloom before Rome Beauty. Therefore, in questionable areas plant the later blooming varieties. Your local Extension office can supply you with information on the more frost hardy fruits and varieties.

One factor often overlooked is the effect of winter temperatures. Extremes in temperatures during December, January, February and March can also damage the flowers. In areas where the winter temperature consistently goes below -15 degrees F will not support consistent fruit production. Although there are some differences by

variety and by fruit type. The following is a general order of tree fruit hardiness from most winter hardy to least hardy. Pears > Apple > Apricots > Tart Cherries > Sweet Cherries > Plums > Peaches > Nectarines. Warm winter temperatures (relative to normal) followed by sudden drops usually kill the flowers while they are still dormant. So remember when you enjoy those few warm days in January or February followed by sudden return to normal or below normal this can result in damage to the flowers. In this instance the flowers will never open in the spring. The only solution to these problems is not to plant fruit trees where very low winter temperatures are common.

The third most common reason for failure of the trees to bear fruit is lack of, or poor, pollination. All flowers must be pollinated in order to form fruit consistently. The better the pollination in apples and pears the larger the fruit. In order for pollination to be successful the flowers must receive healthy pollen at the proper time. The bloom periods of the varieties must overlap. Bees are the main method for the transfer of pollen between flowers. Anything that interferes with bee activity, such as insecticides, cold weather, rain or wind will reduce pollination.

Apples and pears must be cross pollinated. Therefore, you must plant two different varieties if you want to produce fruit. There are also varieties that produce sterile pollen and need to be planted with at least two other varieties. Crabapples and the ornamental Bradford pear can be sources of pollen for apples and pears, respectively. Peaches, nectarines, tart cherries and most plums are self-fruitful. You only need to plant one variety to produce fruit. Sweet cherries are more difficult and certain varieties are incompatible with each other. Bing, Lambert, and Napoleon do not pollinate one another. Plant a pollinating variety such as Black Tartarian, Republican, Van or Windsor. In recent years self fertile sweet cherry cultivars have been introduced. Choosing one of these new cultivars will eliminate the need to plant an additional variety. Tart cherries such as Montmorency will cross pollinate sweet cherries. However, their bloom periods usually do not overlap. The main agents that transfer pollen are honeybees. If you do not see 3 to 4 honeybees per tree visiting the flowers your fruit set may be less than desired. Avoid the use of insecticides during bloom that may kill honeybees.

The solution - check with the local county Extension office for a list of compatible fruit varieties for pollination purposes.

The fourth most common reason fruit trees do not bear fruit is the effect from last year's crop. Fruit trees form their flowers the previous growing season.

Heavy crops the previous year can reduce flower formation for the next year by reducing growth or preventing flower formation. In apples and pears this can be a serious and difficult problem to correct. The solution - remove some of the fruit within 2 to 4 weeks after bloom. If thinned later than this then you will not benefit from increased flowering the next year. With apples and pears, thin the fruit down to one per cluster and allow only fruit bearing clusters every 6 to 10 inches. Too heavy a crop load on peaches and nectarines reduces shoot growth and the result is shorter shoots for next year's flowers. With peaches and nectarines, thin the fruit so that it is spaced one fruit every 8 to 12 inches along the branch. The other tree fruits do not have to be thinned because their fruit comes off earlier in the growing season.

Other reasons for no fruit include tree age, and the use of the insecticide carbaryl during bloom. Do not expect to produce very much fruit on apples and pears until the third to fifth year after planting depending on the rootstock. In fact, it is a good practice to remove any fruit that may form before the tree has gone through three full growing seasons. This will allow the tree to develop the proper number of branches to support future crops. The solution - patience.

The insecticide carbaryl if applied to apple and pear trees during bloom or the first month after bloom will cause the fruit to drop. If a small portion of the fruit drops, then you will have less fruit to thin. However, this practice can remove all the fruit from the tree if carbaryl is applied too frequently or at too high a rate. This problem occurs most frequently when using general purpose spray mixtures. The solution - read the label of all pesticides carefully and avoid the use of carbaryl during this period unless you want to thin the fruit.

Home fruit production requires patience and attention to detail. Frequently there is no single reason for a lack of a crop but rather a combination of all the above reasons. The goal of the home orchardist is to try and control as many of these reasons as possible.

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