

## INTRODUCTION

Fruit trees normally begin to bear fruit when they are old enough to flower. Nevertheless, the health of the tree, its environment, its fruiting habits, and the cultural practices you use all influence its ability to produce fruit. Adequate pollination is essential to fruit yield. One unfavorable condition can reduce yield or prevent the tree from bearing any fruit. You can, however, control some of the factors contributing to fruit production.

## SPECIES SELECTION

When you plant fruit trees, select species and varieties adapted to your local soil and weather conditions. This will increase your chances of having fruit. For example, soils in New Mexico are generally alkaline (high pH). Avoid fruit species that prefer acidic soil conditions (like blueberries) unless they are planted in containers with special care. If you just plant blueberries into the soil without first acidifying the soil and the irrigation water, the plants will develop chlorotic leaves (yellow or even white in color) and soon die. For growers in northern New Mexico, fig and pomegranate are not hardy enough to tolerate the cold winters and may die back each year unless they are planted in protected areas such as greenhouses. These are some examples that show the importance of selecting fruit species that are adapted to your local growing conditions.

## BEARING AGE

Most fruit trees are propagated by grafting or budding the selected variety onto a rootstock. When you purchase nursery-grown trees, their tops will be one to two years old while the roots may be one or two years older. The age (from planting) when trees can be expected to bear fruit depends on the type of fruit you are growing: apple, apricot, and sour cherry require three to five years; peach two to four; pear and plum four to six;



and quince and sweet cherry five to seven. Dwarf fruit trees may begin to bear one to two years earlier than standard-size trees.

## CLIMATE AND WEATHER

Flowers and young fruits of trees are frequently injured by late spring frosts in New Mexico. Injured flowers

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may appear to be normal, but if the pistils (center parts of the flower) are killed, no fruit will be produced. In some years, young fruitlets of apple, peach, cherry, and apricot are already noticeable on the trees, but they can still be killed by late frosts in late April or early May in northern New Mexico. Low temperatures in some severe winters can kill flower buds and cause the tree to bear no crop, as happened with peaches in central and northern New Mexico in 2011.

Time of bloom varies with species. Fruit trees typically bloom in the following order (from earliest to latest): almonds, Japanese plums, apricots, peaches, sweet cherries, pears, European plums, sour cherries, and apples. Varieties of the same species also vary in time of flowering. Make your selections from varieties that are late-blooming and that are recommended for New Mexico. Please refer to NMSU Extension publication Guide H-310, *Fruit and Nut Species and Varieties for Home Orchards* ([http://aces.nmsu.edu/pubs/\\_h/H310.pdf](http://aces.nmsu.edu/pubs/_h/H310.pdf)), for variety recommendations.

In some areas, although the tree sets fruit, fruit may not mature because the frost-free season is not long enough. Most commercial pecan varieties can only be grown in southern New Mexico. Pecan varieties grown in the northern part of the U.S., such as 'Major' and 'Peruque', may be better adapted to northern New Mexico. For fall raspberries, if you are at a high elevation in northern New Mexico, choose early cultivar 'Polana' instead of 'Caroline', which is a heavy producer but matures much later than 'Polana'.

## POLLINATION

Flowers of fruit trees must be pollinated to produce fruit. Without sufficient pollination, they may blossom abundantly but will not bear fruit.

Varieties that bear fruit from pollination among their own flowers are said to be "self-fruitful." Many varieties, though, are "self-unfruitful" and cannot produce fruit from their own pollen; instead, they require pollen from another variety. Some trees, like pecans, have separate male and female flowers on the same tree. If the male pollen is shed before the female flower is receptive, fruit set becomes a problem.

Some species of fruit trees do not fit conveniently into either category. Pistachios, for example, have male trees that produce pollen and female trees that produce fruit. To grow them successfully, it is necessary to plant at least one male tree for every eight female trees.

### Apple and Pear

Most apple trees are self-unfruitful. Plant at least two different varieties near one another. 'Golden Delicious'

(a self-fruitful variety) and 'Jonathan' are the most common pollinators used. If there is a crabapple tree not far from your solitary apple tree with a similar blooming period, it can also act as the pollinator.

In general, a pollinator should be considered for all pear varieties, even though 'Kieffer' and 'Duchess' set good crops without pollinators. 'Anjou' and 'Bartlett' are partially self-fruitful but should be cross-pollinated to produce regular or heavy crops. Most pear varieties, especially 'Bartlett', are susceptible to fire blight disease; 'Moon Glow' and 'Kieffer' are moderately resistant.

### Peach, nectarine, and apricot

Most peach varieties are self-fruitful. However, if you are planting 'J.H. Hale', 'Earlihale', 'Candoka', or 'Mikado' ('June Elberta'), you need to plant another variety to ensure adequate pollination. Most other peach varieties will pollinate those self-unfruitful varieties.

The lack of fuzz on the fruit is the main difference between a nectarine and a peach. Nectarines are usually smaller and have a distinctive, somewhat sharp flavor. Nectarines do not need pollinators.

Nectarine flowers are more susceptible to frost injury than peaches, and the fruit is frequently scarred from injury by insects.

Leading varieties of apricot trees are self-fruitful. However, a pollinator will increase production. 'Goldrich' and 'Perfection' varieties must be cross-pollinated to bear fruit. In northern New Mexico, apricots are good shade trees, but be very cautious when considering apricots as a fruit crop due to their early bloom.

### Plums

Japanese plums bloom earlier than European plums, and for this reason Japanese and European plums will not usually pollinate each other. 'Stanley', the number one European type, is self-fruitful. 'Blue Fire' and 'Stanley' are the most common pollinators for European plums. 'Redheart' is one of the best pollinators for Japanese plums. 'Santa Rosa', one of the most widely planted Japanese plums, and 'Methley' are self-fruitful.

### Sour cherry and sweet cherry

All sour cherries are self-fruitful, such as 'Montmorency', 'Balaton', 'Danube', bush cherry, and Nanking cherry. They are hardier and bloom later than sweet cherries. For sweet cherries, most old varieties ('Bing', 'Lambert', and 'Napoleon') are self-unfruitful, but a lot of varieties after 'Stella' (the first self-fruitful sweet cherry variety) are self-fruitful, such as 'Compact Stella', 'Lapins', 'Blackgold', 'Whitegold', 'Sweetheart', and 'Skeena'. These self-fruitful varieties can serve as universal pollen sources for self-unfruitful sweet cherry varieties.

## CULTURAL PRACTICES

Trees need full sunlight for best production. Inadequate sunlight delays the beginning of fruit bearing and may reduce the amount of fruit. Avoid placing fruit trees where they will be shaded by buildings or by other trees.

Your trees will grow more vigorously and bear better if they have adequate space to develop their root systems. Do not plant them where roots of forest or shade trees will compete with them.

Use cultural controls, mulching, herbicides, or other tools to reduce competition from weeds or grass.

Train and prune fruit trees to systems suitable for the species. Strong branches are needed to support the weight of a heavy crop. Severe pruning may stimulate excessive upright growth, which delays flower production and reduces yields.

Trees must be healthy to produce good-quality fruit. Weak or diseased trees produce either poor-quality fruit or no fruit at all. The first step is to manage/control insect pests and diseases. Water and nutrient management is also necessary for healthy trees. Even for organic production, you still need to feed your trees with organically allowed compost, manure, or other organic fertilizers.

Occasionally, fruit trees bear heavily one year and sparsely the next. This is called “biennial bearing.” The spring-flowering buds of most hardy fruit trees formed during the previous spring or summer. Therefore, an especially heavy crop in one year may prevent adequate

bud formation for the following year, or may seriously weaken the tree.

Biennial bearing of apples is difficult to alter or correct. Sometimes chemical thinning or hand thinning, when fruit set is heavy, can induce a return to normal yearly fruit production.

Thinning should be done early, soon after fruit set and before flower buds for next season are initiated. Thin fruit to approximately four to six inches apart. You can also adjust fruit load through winter pruning—thin some flower buds during winter pruning if the next season is supposed to be a heavy crop year.

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