Growing Tree Fruit at Home in the Eastern Sierra

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In general growing fruit requires adequate water, suitable soil and climate. The Eastern Sierra has long warm summer days and cool nights and a relatively dry growing season, which is beneficial to growing excellent fruit. The main factor that inhibits fruit production on the east side of the Sierra's are the frosts, which occur during early spring. Most fruit trees need at least 150 consecutive frost-free days. This is the number of days between the last killing frost in the spring (28°F) and the first killing frost in the fall. The frost-free period must start early enough in the spring so that fruit blossoms are not damaged. It must also continue long enough into the fall so the fruit will mature and the leaves, twigs and branches will acclimate to winter.

On the east side of the Sierra's we often have warm periods in late winter and early spring, which trigger fruit trees to break dormancy. This is often followed by one or two additional spring freezes, which are triggered by late storm events. This late freeze after the fruit trees have broken dormancy, bloomed, and set fruit often causes trees in our region to loose their developing fruit. Depending on the location, aspect and microclimate in your area you can expect fruit production to be affected 3 out of 5 years.

Planting Plan:

Before you purchase or plant any fruit trees, carefully consider your planting site. Fruit trees perform best in full sunlight and in good soil conditions. An ideal soil is well-drained, fertile, slightly acidic sandy loam, at least four feet deep. Trees can be raised successfully on poorer soils but this requires more intensive management. Trees located in partial shade may grow well but will not produce much fruit. Frost damage to spring blossoms may be a problem if your site is located on low ground where cold air settles. It is better to plant trees on high or sloped ground (5 to 10 percent slope) so blossoms can escape spring frosts. Avoid windswept hilltops. If your planting sites are situated in frost pockets, you may want to avoid planting fruit trees that blossom in early spring, such as apricots, plums, peaches and nectarines.

Another aspect to consider is how much room you have available for fruit trees in your garden. A standard (full-size) apple or cherry tree can reach 40 feet high and 30 to 40 feet wide – too large for many gardens. But a number of choices are available to fit a more limited space. Most kinds of fruit trees are sold not only as standard-size plants but also in semi dwarf or dwarf forms, made by grafting a standard type tree onto dwarfing rootstock. Semi dwarf fruit trees typically reach one-half to three-fourths normal height and depending on the species, dwarf fruit trees grow only 5 to 10 feet tall. Some fruit trees are also available as genetic dwarfs—plants bred to be naturally small (just 4 to 10 feet high). These are well adapted to container culture.

Multiple-variety trees offer another way to grow fruit trees in a limited area. Such trees have three to five varieties of the same or a closely related species grafted onto a single trunk /rootstock.

Tree Hardiness:

Hardiness refers to a tree's ability to withstand cold temperatures during winter. On the east side of the Sierra Nevada Mountain Range, that means trees must be hardy from 10°F to -20°F depending on location, aspect and elevation. Winter temperatures in most areas of Inyo and Mono Counties do not always dip this low, but every few years they do, and the trees must be able to survive these cold winters. During the winter months buds and flowers will survive lower temperatures if the minimum temperatures occur for only a short period of time. In general many kinds of apples, sour cherries, and hardy hybrid plums can withstand winter temperatures as low as -30°F while pears, sweet cherries, and Japanese and European plums tolerate temperatures to –20°F. Peaches and apricots may be injured if winter temperature drop below 15°F for extended periods of time. Citrus trees are damaged if the temperature falls below 32°F for any length of time. By taking advantage of your garden's microclimates, however, you may be able to grow fruit trees beyond their normal hardiness range.

As buds swell and develop in early spring fruit trees become less cold hardy and prone to injury. For example, unopened peach buds showing pink color will survive temperatures of 25°F. At full bloom,

damage can occur at 27°F. Ten days after bloom the young developing fruit will withstand only 30°F. See table below for specific fruit.

Temperatures at Which Developing Flowers and Young Fruit Are Injured.

Stone fruit	Buds showing color	Full bloom	Small green fruit
apricot	25°F (–4°C)	28°F (–2°C)	30°F (–1°C)
cherry	27°F (–3°C)	28°F (–2°C)	30°F (–1°C)
peach, nectarine	25°F (–4°C)	27°F (–3°C)	30°F (–1°C)
plum, prune	25°F (–4°C)	28°F (–2°C)	30°F (–1°C)

If you want to determine the extent of fruit loss after a cold snap in the spring, take shoot cuttings and place them in water; the buds will open and bloom. Check to see if the center of the flower (pistil) is brown. If brown, the blossom is damaged and will not bear fruit. Only 7 to 10 percent of the total flowers on a fruit tree are needed to produce a good fruit crop.

Most apple and pear varieties are hardy enough for the Eastern Sierra's as are many sweet and sour cherry varieties and plum varieties. Several peach varieties are also hardy. Apricots and nectarines are the least hardy of the fruit trees, but in some areas with milder winters you can have a fruit crop from them. If you grow stone fruits, expect some winter damage and occasional crop losses from late spring frosts.

Pollination:

Many kinds of fruit trees require cross-pollination for good fruit set. If you live in an area where there are few other fruit trees, check the pollination requirements of those you want to grow. If cross-pollination is needed, you don't necessarily have to plant another tree: you may be able to graft a polenizer branch onto the chosen trees. Check with your nursery if the variety of fruit tree you choose need cross-pollination or are self-pollinating.

Pest Control:

The need for pest control in producing quality fruit is very important. Fruit trees, especially apples and cherries, may require 4-6 sprays a year or more for adequate pest control. For this reason, it is best not to locate fruit trees in areas where you'd like to limit pesticide usage, such as children's play area or the vegetable garden. Having a separate area for fruit trees is the easiest situation to manage and maintain.

Fertilization:

It is seldom necessary to fertilize a newly planted tree. Dry fertilizer or manure are high in salts and can easily burn tender new roots. It may be helpful to apply a water-soluble transplant solution immediately after planting a tree but this is optional.

Nitrogen is the nutrient most often needed. A tree deficient in nitrogen will have light green to yellowish leaves and reduced shoot growth. When shoots of peach and nectarine trees grow less than 12 to 18 inches a year, a nitrogen fertilizer is needed. Apply ¼ pound of actual nitrogen per tree multiplied by the number of years the tree has been planted, up to a maximum of 1 pound per tree. Fruit trees respond to any form of nitrogen.

Scatter fertilizer under the spread of branches and just beyond the drip line of the outer most branches of your fruit trees. To prevent the possibility of fertilizer burn, keep fertilizer at least 8 inches from the trunk. You may apply fertilizer any time from late fall to early spring. Water thoroughly to carry the nitrogen down into the root zone. Don't apply excessive amounts of fertilizer. Too much nitrogen causes excessive branch growth, inhibits fruit set, causes poor fruit color and flavor, delays fruit ripening and stimulates excessive vegetative growth that can shade out fruiting wood lower on the tree. Also, late application of nitrogen, after mid-July, can prevent the proper "hardening off" of the tree for winter dormancy and potentially subjecting the tree to more winter injury during severe winters.

Irrigation:

Regular irrigation is needed to grow tree fruit in the Eastern Sierra. Uniform soil moisture is important in order to maintain tree vigor, productivity, and fruit size. It is especially important to provide the tree with adequate water during the first year after planting to help develop a good root system. Irrigate from the onset of growth in the spring through the growing season to late September or early October. If it is an extremely dry fall you should irrigate the trees a couple of times through the late fall and winter when the ground is not frozen.

During the growing season avoid frequent shallow irrigation with sprinklers. Frequent, lighter watering encourages a shallow root system and can cause the

development of wood rot, which attacks the trunks and roots, killing the tree. Less frequent and deeper watering are preferable. Irrigate your tree with a good deep soaking every 7 to 17 days, depending on the season, weather, and soil moisture holding capacity. (Seven-day intervals are better for many dwarfing rootstocks.) Drip irrigation, a soaker hose, or a slow trickle of your garden hose will provide a good deep watering without drowning your tree. Most of the roots are concentrated in the upper two feet of soil extending outward slightly beyond the spread of limbs. It is this area of soil you want to moisten during irrigation.

It may be helpful to make a depression or basin around trees to collect water and aid in summer irrigation. It is also important to level the soil surrounding the tree in the fall. This prevents water from collecting and freezing around the trunk during the winter and causing injury to the tree. This is especially true with soils that have high clay content.

Mulches are beneficial to young fruit trees. Mulches of any plant material, such as shredded bark, grass clippings, straw, or sawdust conserve soil moisture, moderate extreme soil temperatures, and help reduce competition from weeds and turf. Apply mulch 3 to 4 inches deep, but keep the mulch several inches away from the trunk. In early fall, remove the mulch. This lets the roots know that temperatures are getting cooler and winter is on its way. The tree will begin to harden off or get physiologically ready for winter. Removing the mulch also prevents mice and other rodents from hiding in the mulch and chewing off the bark during the winter.

Fruit Thinning:

When all factors are favorable your tree may actually set too many fruit. An over abundance of fruit on a tree may weaken it and result in fewer buds, leading to a smaller crop for next season. A heavy crop also can result in small-sized fruit of poor quality.

The general rule for thinning fruit is to thin fruit when they are ¾ to 1 inch in diameter. At this stage, you can remove fruit that has been damaged by insects, disease, or hail; frost danger should be past, a natural thinning will have occurred for those varieties affected by June drop. The exact timing for thinning will depend on variety, local weather conditions, and desired final fruit size.

Recommended average spacing distances are in the table below. Thinning should be done to allow a closer spacing near the base of the branch and wider spacing near the tip of the branch. This is done to avoid the branch bending or breaking off from too much weight at the tip. An easy method I use for thinning of peaches, nectarines, apples and pears is to space fruit the width of my open hand (which is about 6") along the individual branches through out the tree.

THINNING (Recommended Average Spacing)

Fruit	Spacing	Comment
Apricot	3-4 inches	- - - - -
Cherry	- - - - -	Impractical to thin
Peach	4-8 inches	Early varieties at
Apple	4-6 inches	One fruit every 3rd
Pear	6 inches	- - - - -

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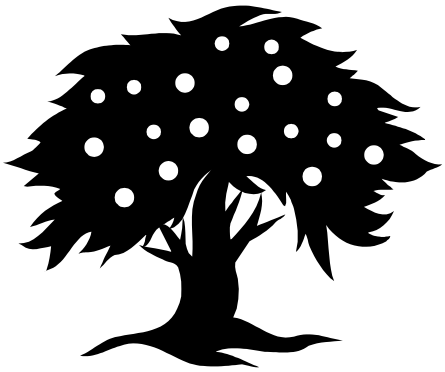

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