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# Deciduous Fruit Tree Chilling Requirements

Before choosing a fruit tree variety, you should know something about chilling requirements and how they are used to select appropriate fruit tree varieties.

Deciduous fruit trees need a certain amount of winter chilling to break down growth inhibitors in flower and vegetative buds. Many nurseries provide an estimate of the chilling requirement (also called chill hours) needed for the tree to be successful in a given climate regime. Varieties vary by chilling requirement and varieties are recommended based on the "average" number of winter chill hours a given area receives on average during the winter dormant season.

The classic definition of chilling requirement is the number of hours the temperature is below 45 degrees F and above 32 degrees F. More recently, it has been suggested that hours above 65 degrees F be subtracted from the previous calculation. While it sounds feasible at first, the National Weather Service does not routinely calculate and publish these statistics. To further complicate this issue, many horticulturists are in the process of rethinking how chilling requirements should be calculated. Given all this difficulty and disagreement, the fruit trees themselves are usually very forgiving. The real trick is to know that there is a chilling requirement and what the appropriate "ballpark" figure is for your area.

There are some observable symptoms to look for in fruit trees that have chilling hours incompatible with the local climate. Fruit trees with a lower chilling requirement than necessary frequently experience crop loss due to early bloom and crop damage from late spring frosts. In these situations, the chilling requirement was exceeded. Conversely, planting varieties with higher chilling requirements than required can result in uneven bloom and/or delayed foliation. In these cases, the chilling requirement was not met. Remember, chilling requirements are based on averages and calculated averages are made up from extremes; each chilling requirement has some latitude.

Without recent reliable information for Arizona, the following are ranges of chilling requirements for most areas of Yavapai County by elevation range. For elevations above 6,000 ft, look for varieties with chilling requirements above 1,000 hours. For elevations between 4,500 and 6,000 ft, look for varieties with chilling requirements between 750 and 1,000 hours. For elevations between 3,000 and 4,500 ft, look for varieties with chilling requirements between 500 and 750 hours. Remember, you have some flexibility here depending on your orchard site/microclimate. Apples and pears often bloom later and have greater tolerance of colder temperatures. Stone fruits are much more frost-prone and the recommended chill hours are more critical.

Stone fruits (peaches, apricots, cherries, plums, etc.) are typically earlier to bloom than pome-type fruits (apple, pear, quince) and will produce crops less frequently in areas prone to late spring freezes. In addition, fruit varieties are also advertised as having either early, midseason, or late season bloom periods. For best results, talk to neighbors, visit with reputable fruit growers, or visit your local Cooperative Extension office for additional information.

Always buy high quality fruit trees from reliable sources. Bare root trees are preferred over container grown fruit trees by many people. Many nurseries no longer stock bare root deciduous fruit trees for retail sale. Some mail order or online sources will ship directly to consumers for planting in the early spring. Bare root trees packaged in small plastic bags from big box stores are not recommended. These trees are often sold without listing the chilling requirement and may have been on the shelf for an extended period.

When purchasing a fruit tree, look at the labels or packaging to find the chilling requirement for that variety. High-quality trees often tell you the fruit variety, the chilling requirement, and which rootstock the tree is grafted to. You can ask the nursery person to assist you in locating this information.



Peaches growing in Chino Valley, Arizona (Photo by Jeff Schalau).

## Additional Resources

### [Backyard Fruit Production at Elevations 3,500 to 6,000 Feet](#)

University of Arizona Cooperative Extension

### [Fruit Tree Chilling Requirement](#)

Dave Wilson Nursery

### [Dave Wilson Nursery Fruit Tree Varieties](#)

Listings of varieties and their chilling requirements.

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