
Pruning Trees (*Landscape & Fruit Trees*)

The primary reason to prune trees and shrubs is to maintain the health and vigor of the plant. Safety is also a good reason to prune - especially around vehicular traffic, structures, and power lines. Pruning should only be done by experienced people that understand plant growth. In addition, working conditions should be safe and pruning tools should be sharp and clean. Large trees are usually best left to professionals. If in doubt, hire an International Society of Arboriculture (ISA) Certified Arborist.

Pruning a tree always causes a wound. The tree responds to pruning in several ways: 1) the loss of leaves lowers the amount of energy the tree can harvest from the sun (photosynthesis); 2) the wound is a potential entry site for pests and diseases; 3) new distribution of plant growth hormones within the tree causes sprouting (suckers, water sprouts, or lateral buds); and 4) overall vigor decreases. Over time, the pruning wound will heal and pruning sealers and compounds should not be used as they inhibit wound recovery.

Pruning Coniferous Evergreens

It is difficult to reduce a conifer's size through pruning – it's best to select the tree to fit the location at the time of planting. Conifers such as pines, junipers, and cedars, usually require less pruning than broadleaf trees. They also grow differently than broadleaf trees and shrubs. Coniferous trees often have a dominant leader which causes them to be cone-shaped. This is especially true in young coniferous trees. Most pines, Deodar and Atlas cedars, spruces, Douglas-firs, and true firs are cone-shaped. Some conifers, like many mature broadleaf trees, develop a wide-spreading crown after forming a short trunk and have a diffuse, random branching habit. This diffuse branching pattern allows more latitude in pruning.

Dead, diseased, crowded, and structurally unsound branches should be removed first. Lower branches of conifer trees are often shaded out by the crown and die. Dead lower branches should be removed. Conifer trees can often have double leaders (forked tops) which are usually caused by damage to the terminal leader (the top of the tree). If possible, one of the leaders should be removed unless the natural growth habit includes several main branches.

The distribution of growing points often limits the severity of pruning conifers. In many conifers, all growth originates from buds formed in the previous growing season. Conifer trees often have all their lateral buds in whorls just below the terminal bud. Always prune conifers back to a visible lateral bud or branch. Unlike broadleaf trees, most conifers do not have latent (hidden) buds that may initiate growth following injury. If there are no visible buds, pruning into old wood will usually result in a stub from which no new growth will arise.

Most coniferous trees are sold with the lateral branches left intact and the crown extending all the way to the ground. The energy from these lateral branches will increase diameter growth and result in a sturdier tree with greater trunk taper. As the tree increases in height, these side branches can be pruned away. People often want to do this so they can enjoy the shade of the tree. Be aware that you should never remove more than 1/3 of the live foliage in a given year and it is better to remove as little as possible. The leaves are the food factory of the tree and help maintain vigor.

Many landscapes contain juniper shrubs that have outgrown their allotted space. When these are radically sheared or stub pruned, it can result in an ugly mess. This is not the way to correctly prune these plants. Follow the same rules outlined above: prune back to live lateral branches. For juniper shrubs, this may need to be done over the course of several years to maintain vigor and allow recovery.

The best time of year to prune coniferous trees is in the fall and early winter. Cooler weather decreases metabolic activity. Conifer trees have leaves year-round and continue to make food. Remember, pruning should always be done conservatively – especially if you lack experience.

Pruning Deciduous Shade Trees

Trees from nurseries are often sold staked with their side branches pruned to create a trunk. This practice is not recommended because these side branches provide energy to the trunk at their point of attachment. The energy from these side branches will increase diameter growth and result in a sturdier tree. As the tree increases in height, these side branches may be pruned away.

If a young tree has too many lateral branches that originate at the same level, they can become crowded as it matures. The lateral branches coming directly off the trunk are called scaffold branches. The strength and spacing of the scaffold branches will determine the structure and shape of the mature tree. In general, scaffold branches should be spaced 12 inches or more vertically from the next scaffold branch above or below that point. They should also be evenly spaced in the radial dimension and not all be growing out of one side of the trunk.

Crossing branches are undesirable. They rub against each other causing injury to the bark and entry points for diseases and insects. In this situation, a choice must be made. It may not be an easy choice, but if not pruned, the problem usually gets worse. Once the least of two evils is selected, the pruning cut should be made at a location that does not leave a dead stub or promote extensive sucker growth. It is best to cut the offending branch off where it is attached to a larger branch or the trunk.

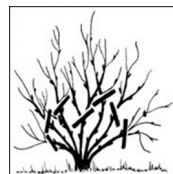
The best time of year to prune deciduous shade trees is in winter. They are dormant and the branching structure can easily be observed. Summer pruning should be done only when branches are broken or there is a safety hazard. Dormant pruning also decreases the risk of injury from torn bark.

Pruning Deciduous Fruit Trees

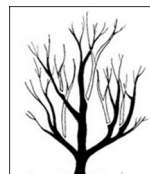
There are two general strategies that can be used in pruning deciduous fruit trees. Peach, nectarine, plum, sweet cherry, apricot, and fig trees are usually pruned using the "open center" method. The open center method creates a broad vase-shaped canopy increasing light availability and air circulation. This results in healthier foliage and stronger branches which can produce a high quality fruit crop. Increasing air circulation reduces insect and disease potential. The open center method also tends to keep the fruit closer to the ground making it easier to harvest.

Conversely, apple, pear, sour cherry, and European plum (prune) trees are usually pruned using the "modified central leader method." This method retains the main trunk in the center of the tree as well as some side branches. The side branches are called scaffold branches and should be selected based on their crotch angle and be evenly spaced radiating outward from the main trunk at different heights. The "modified central leader" method results in a sturdy tree that stands up well to harsh weather. However, for backyard fruit production, these trees can also be pruned using an open center method.

Pruning cuts also come in two varieties: heading and thinning cuts. A heading cut is typically placed at the tip of a branch to encourage branching below that point. By cutting off the tip, suppressed buds grow out and produce new branches. Heading cuts should only be made if you need to promote branching. Newly planted trees usually need to be "headed" to induce scaffold branching. Thinning cuts remove side branches (not tips) to open up the crown of the tree. In my experience, 90% of pruning is thinning cuts.



Heading cuts

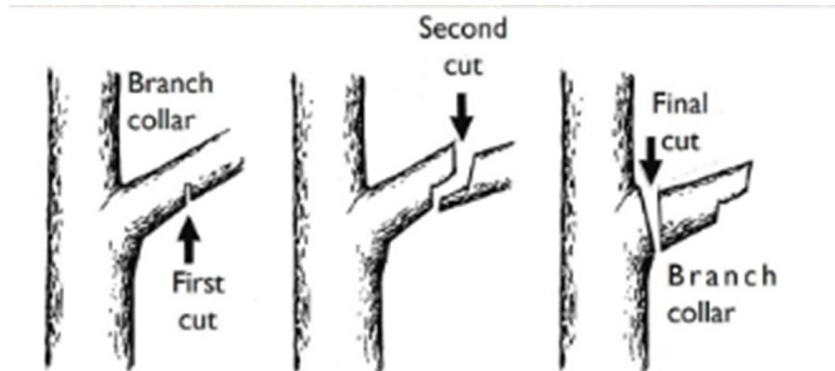


Thinning cuts

Once a tree begins to produce fruit, you need to understand exactly where fruit is formed on the tree. Peaches, nectarines, and figs produce fruit on the previous year's wood. Most apple, pears, apricots, plums, and cherries produce fruit on short spurs for a number of years depending on type of fruit. In general, peaches and nectarines need more aggressive yearly pruning than the spur fruiting trees.

Ideally, large branches will never have to be pruned because we all prune our trees correctly each year and know exactly what we are doing at all times. So, if one of your neighbors asks you for advice on pruning large branches, do not let them prune it flush to the trunk or main branch. Instead, it should be pruned just beyond the branch collar (swollen area near). The resulting wound has a smaller surface area and will callus and heal over more quickly. By the way, do not use sealants to cover pruning cuts. They are not necessary and can cause decay if applied in thick layers

Proper Pruning Cuts on Side Branches To make a proper pruning cut on a side branch, do it in three steps. First, go several inches above the point where the final cut will be made and cut the underside of the branch about a third of the way through. Second, go above the undercut and saw through the branch until it breaks away. Third, make the final cut preserving the branch collar (the swollen area where the branch is attached). This method takes the weight off the branch first and prevents stripped bark where the final cut is made. Never use pruning paint or sealant on a pruning wound.



NEVER TOP TREES! Topping ruins conifers for life. Deciduous trees respond to topping by producing multiple new branches below the cut. These new limbs are weakly attached and break easily in the wind. Re-grown limbs (water sprouts) never have the structural integrity of a well-attached, natural limb. Topping also promotes spread of disease and always results in an ugly tree.

Additional Resources:

[Pruning Deciduous Shade Trees](#), University of Arizona

[Pruning Evergreen Shrubs](#), University of Arizona

Find an arborist, based on your ZIP code. Treesaregood.org

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