

## Pruning Trees

Each plant in the landscape has its own growth habit and different requirements for pruning. Some plants are pruned routinely to maintain a desired size or shape. Others are pruned to promote healthy vigorous growth, flowering or fruiting. Sometimes it is necessary to prune shrubs that overgrow their sites, crowd other plants or limit the view from windows. Plants damaged by insects, diseases or freezing injury may require corrective pruning.

Improper pruning or pruning at the wrong time of year can result in misshapened plants, reduced flowering or plants that are more likely to be damaged by insects, diseases or winter cold. It is important to learn about the three T's of proper pruning: tools, timing and technique.

### Pruning Tools

Like other products on the market today, pruning tools are available in a wide range of brand names, styles and prices. When purchasing tools, shop for quality and durability before price. Look for tool manufacturers that provide replacement parts on request and offer warranties against faulty materials and workmanship.

Most pruning tasks in the landscape can be accomplished using hand pruners, lopping shears, pruning saws, pole pruners or hedge shears. There are two basic types of hand pruners: (1) Scissor-action or bypass pruners, and (2) Straight-anvil pruners. Scissor-action pruners have a sharpened blade that cuts by gliding against a thicker sharp blade. Anvil-action pruners have a sharp blade that cuts against a broad, flattened, grooved blade. Scissor-action pruners usually cost more than anvil-action pruners but they make closer, smoother cuts. Anvil-action pruners can make larger cuts easier than scissor-action pruners. Hand pruners cut small twigs and branches up to one-half inch in diameter.

For larger branches, one-half to 1½ inches in diameter, lopping shears are best. Lopping shears, sometimes called loppers, are like scissor-action hand pruners except they have larger blades and long handles that

increase leverage. When using loppers, cut in one smooth stroke to avoid injuring the branch.

A pruning saw is used for branches larger than 1½ inches in diameter. A pruning saw has a narrower blade for easier maneuvering and coarser points or teeth than a common carpentry saw. Most pruning saws also have curved blades that cut on the draw stroke (pulling the blade toward you).

Pole pruners remove branches from trees that cannot be reached from the ground. Most pole pruners have both a cutting blade and a saw. The cutting blade is operated from the ground by a long rope or lanyard that is pulled downward. The pole can be made from aluminum, fiberglass or plastic. Some poles fit together in three 6-foot sections, while newer models have a telescoping type of extension. Because of the risk of electrocution, avoid using aluminum-handled pole pruners near power lines.

Use hedge shears (manual, gasoline-powered or electric) to shear or clip hedges or other plants when you want a neatly trimmed appearance. Do not attempt to cut large branches with hedge shears.

To keep all pruning tools in good shape, sharpen and oil their blades at the end of each season. When sharpening loppers, hedge shears and scissor-action hand shears, sharpen only the outside surfaces of the blades so the inside surfaces remain flat and slide smoothly against one another. It is best to have pruning saws sharpened by a professional. Oil blades by wiping them with a cloth saturated in household oil, and treat wooden handles with linseed oil.

### Pruning Time

Because flowering ornamentals form their flower buds at different times of year, pruning times must be adjusted accordingly. Many spring-flowering plants such as azalea, dogwood, forsythia, redbud and rhododendron set flower buds in the fall, so pruning during the fall and winter months eliminates or decreases their spring

flower display. Plants that typically flower during the summer form flower buds on new growth and can be pruned during the winter with no effect on their flowering. Examples of this type of plant are crape myrtle, hibiscus and abelia.

As a general rule, plants that flower before June 1 should be pruned after they bloom while those that flower after June 1 are considered summer-flowering and can be pruned just prior to spring growth. One exception to this rule is the oakleaf hydrangea, a summer-flowering shrub that forms flower buds the previous season. Late-flowering azalea cultivars that bloom during June or even July are another exception. Prune both the oakleaf hydrangea and the azalea cultivars after they bloom.

For further information on suggested pruning times for selected flowering trees and shrubs, refer to the fact sheet [HGIC 1053, Pruning Shrub](#).

Ornamental plants that are not grown for their showy flowers can be pruned during the late winter, spring, or summer months. Avoid pruning during the fall or early winter because pruning in fall encourages tender new growth that may not be sufficiently hardened to resist the winter cold.

Some shade and flowering trees tend to bleed or excrete large amounts of sap from pruning wounds. Among these trees are maple, birch, dogwood, beech, elm, willow, flowering plum and flowering cherry. Sap excreted from the tree is not harmful, but it is unsightly. To minimize bleeding, prune these trees after the leaves have matured. Leaves use plant sap when they expand, and the tree excretes less sap from the wound.

### Pruning Technique

To understand why one pruning technique is preferred over another for a particular plant and why cuts are made the way they are, it helps to understand a basic physiological principle of pruning. The terminal bud — the bud at the end of a branch or twig — produces a hormone called auxin that directs the growth of lateral buds — buds along the side of the branch or twig. As long as the terminal bud is intact, auxin suppresses the growth of lateral buds and shoots behind the terminal. However, when you remove the terminal bud by pruning, lateral buds and shoots below the pruning cut grow vigorously. The most vigorous new growth always occurs within 6 to 8 inches of the pruning cut.

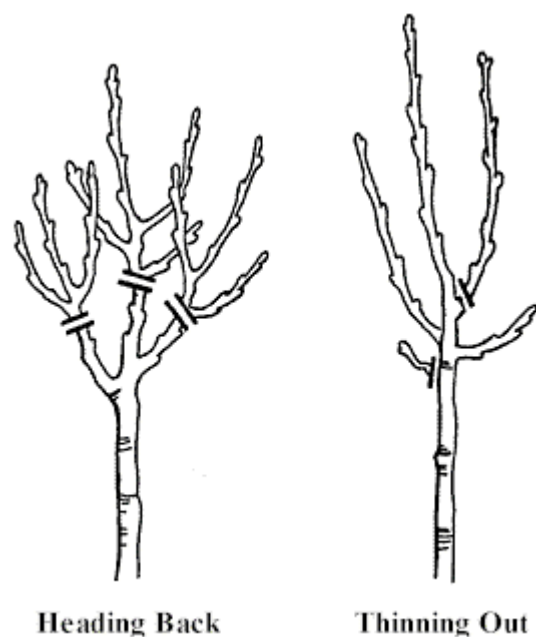
### Prune Plants Either by Heading Back or by Thinning

Heading back (Figure 1) or stubbing trees is rarely warranted in landscape sites and often results in undesirable multiple leaders or trunks. If it is necessary, for

instance, to prune beneath power lines or to clear a tree from interfering with a structure, always prune back to a fork where there is a live branch that is at least half the diameter of the limb being removed. This technique is called “drop-crotching.” Within several months, prune out all sprouts growing in response to the cut. Never “hat-rack” a landscape tree by cutting all of its branches back to an arbitrary length. This type of pruning has no place in horticulture.

Thinning (cutting selected branches back to a lateral branch or main trunk) is usually preferred over heading back (Figure 1). Trees can be thinned to increase light penetration and encourage turfgrass growth beneath the tree. First, remove branches that are rubbing, crossed over each other, dead, diseased or dying. Removing upright branches creates a more spreading tree while removing horizontal branches results in an upright form. If further thinning is desired, remove branches back to major limbs to create an open crown. This is a specialized technique best performed by a professional arborist. Space remaining branches along the major limbs so that each one has room to develop. Trees with properly thinned crowns resist wind damage better than unpruned trees.

**Figure 1.**



### Making the Cut

A second physiological principle helps explain what happens when you make a pruning cut. When you cut a branch back to the main trunk, to a lateral branch or to a lateral bud, a higher concentration of hormones in these areas causes the wound to heal rapidly. When you leave a stub, the distance from the hormonal source increases and the wound heals slower, if it heals at all. Insects and

diseases may enter the cut portion of a stub and cause it to die back.

Therefore, regardless of whether you are pruning a small twig or a large branch, you can avoid leaving a stub by always cutting back to a bud, a lateral branch or the main trunk. When you prune back to a bud, make the cut at a slight angle just above the bud. This allows moisture to flow readily off the wound. A hormonal stimulus from the nearby bud accelerates the healing process. However, avoid making the cut at a sharp angle because it will produce a larger wound.

### Selecting Branches to be Pruned

Become familiar with the characteristic form of your tree before removing any live branches. In many landscapes, little or no attempt should be made to significantly change these characteristic growth habits. Instead, prune in such a way as to enhance and encourage the natural shape of the tree. First remove dead, diseased or broken twigs and branches. Now study the tree's form and select the best-spaced and -positioned permanent branches, removing or shortening the others. To shorten, use thinning cuts. Permanent branches should be spaced 6 to 24 inches apart on the trunk, depending on the ultimate mature size of the tree. On smaller trees like dogwoods, a 6-inch spacing is adequate, whereas spaces of 18 to 24 inches are best for large maturing trees like oaks. Remove fast-growing suckers that sprout at the base of and along tree trunks or on large interior limbs.

To prune a young tree to a single leader (the stem that will become the trunk), locate the straightest and best leader to retain. In shaping the tree crown, remove lateral branches that are growing upright. They will compete with the leader and form a weak, multi-leader tree. Most trees can be grown with a single leader when they are young, but the growth habit of some species will change to a multiple leader spreading form at maturity. There should be no branches leaving the trunk at an acute angle or narrow forks either between branches or between a branch and the trunk. Branches that are less than two-thirds the diameter of the trunk are less likely to split off than larger branches.

When training a young tree, prune back those branches below the lowest permanent branch 8 to 12 inches from the trunk; these are temporary branches. Remove any lower branches that are larger than a quarter-inch in diameter. By keeping the smaller-diameter branches on the trunk, the tree will grow faster and develop a thicker trunk. The trunk will also be better protected from sunburn and vandalism or accidental damage. Removing the lower branches too soon will result in a poorer quality plant. When the tree trunk approaches 2

inches in diameter (measured 6 inches up from the ground), remove the temporary branches.

Once the framework (trunk and main branches) of the tree is established, some annual maintenance pruning is required. Each tree is different in its growth habit, vigor and pruning requirements, but there are some general considerations that may help direct your pruning decisions:

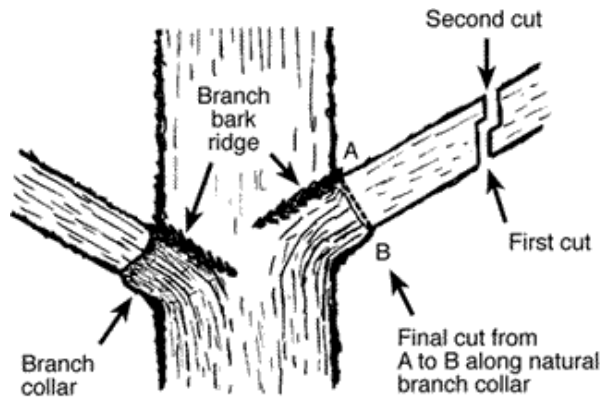
- A major limb growing at a narrow angle to the main trunk (less than a 45-degree angle) is likely to develop a weak crotch and may split during heavy winds and ice loads. Remove branches that have narrow crotch angles.
- Remove branches that grow inward or threaten to rub against nearby branches.
- Remove branches that grow downward from the main limbs, which may interfere with mowing and other maintenance practices.
- Prune branches damaged by insects, diseases, winter cold or storms below the damaged area. Prune branches of pear, pyracantha or loquat damaged by fireblight disease several inches below the infection. To prevent spreading the disease, sterilize pruning tools between cuts by dipping the blades in isopropyl rubbing alcohol or a solution prepared from one part household bleach to nine parts water.
- Trees such as [Bradford pear](#), [ornamental cherry](#), [crabapple](#) and [ornamental plum](#) form vigorous shoots or suckers at the base of the trunk and many upright succulent shoots (watersprouts) along the main branches. These shoots starve the tree of valuable nutrients and detract from the tree's overall appearance. Remove them while they are young.
- Some trees develop upright shoots, which compete with the main trunk for dominance. Remove these shoots if you want to maintain a conical or pyramidal growth habit.

### Removing Large Tree Branches

Branches larger than 1½ inches in diameter require three separate cuts to prevent trunk bark stripping (Figure 2). The first cut is made on the underside of the branch about 15 inches away from the trunk and as far up through the branch as possible before the branch weight binds the saw. The second cut is made downward from the top of the branch about 18 inches from the main trunk to cause the limb to split cleanly between the two cuts without tearing the bark. The remaining stub can then be supported easily with one hand while it is cut from the tree. This final cut should begin on the outside of the branch bark ridge and end just outside of the

branch collar swelling on the lower side of the branch. The branch bark ridge is usually rough, always darker than the surrounding bark, and fairly obvious on most species. The collar is a swollen area at the base of a branch. This region between the branch and the trunk acts as a natural barrier to decay-causing organisms. Note that the cut is usually made angling down and outward from the tree. If the cut must be made straight down (parallel to the trunk), do not make it flush with the tree trunk. A flush cut will cause serious injury. Although this was once standard practice, research has conclusively shown that flush cuts cause extensive trunk decay because wood that is actually part of the trunk gets cut.

**Figure 2.**



Painting wounds with tree wound dressing has become a controversial practice. Research has shown that wound dressings do not prevent decay. When exposed to the sun, the protective coating often cracks, allowing moisture to enter and accumulate in pockets between the wood and the wound covering. This situation may be more inviting to wood rotting organisms than one with no wound cover.

### Broadleaf Evergreen Trees

Broadleaf evergreens, like [magnolias](#) and [hollies](#), usually require little or no pruning. In fact, most broadleaf evergreens develop a naturally symmetric growth habit when left alone.

You may want to prune some during the early life of the tree to balance the growth or to eliminate multiple trunks and/or multiple leader branches. Otherwise routine annual pruning is not recommended.

### Pruning Conifers (Needle-Type Evergreens)

Most upright-growing plants in this group such as spruce, [pine](#), cedar and fir have branches spaced evenly

around the main trunk. They develop a symmetrical growth habit and become quite large at maturity. If planted in open areas and given plenty of room to grow, they require minimal pruning.

If you remove about one-half of the new shoots while new growth is in the “candle stage” (small immature needles packed around the stem resembling a candle), you can thicken the growth of pines and spruce. Avoid cutting back into the hardened older wood because new shoots will not grow and the form of the plant will be destroyed.

Upright and broad-spreading [junipers](#) sometimes out-grow their sites and must be reduced in size. You can make thinning cuts within the canopy to reduce plant size without destroying the natural shape. You can also shear, but shearing is recommended only when you desire formal shapes.

Like [pines](#) and spruces, junipers do not generate new growth from old wood, so you should never severely prune more than one-half of the foliage. You can reduce the length of individual branches by cutting them back to a lateral branch. This technique maintains a natural appearance while it decreases the size of the shrub.

### Pruning Palms

Take care when pruning [palms](#) not to cut or otherwise injure the terminal bud or the whole tree will die. Old dead leaves on palms should be removed as they often harbor insects and rodents and may become a fire hazard. Remove palm leaves by cutting them from the underside to avoid tearing the fibers of the palm’s stem.

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