

Pruning For Success

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The most common maintenance procedure for trees is pruning. Pruning is the purposeful removal of plant parts. Trees growing in the forest usually need little or no pruning. However, trees in landscape situations may require pruning to remove dead branches, improve the tree structure, enhance vigor, or maintain safety. Step back and reconsider if you find yourself pruning off healthy, non-hazardous branches on a tree with good form. Deciding when and what to prune is easier if you understand the why and how of the pruning process.

Reasons for pruning trees generally fit into three closely related categories. They are health, hazard, and form. Pruning for tree health includes removal of insect or disease infested branches, broken or dead branches, and crowded branches. Pruning to reduce hazard to people or property includes removal of dead and decaying branches, branches that restrict lines of sight or passage along streets and sidewalks, branches that rub buildings or other structures, or branches that interfere with utility lines. Pruning for form involves removal of certain branches and leaving others to promote growth toward or away from certain areas.

The best time to prune trees depends on the desired results. Pruning to remove diseased branches should be done as necessary in order to protect the plant. Removal of weak, diseased, or dead limbs can be performed at any time with little effect on the tree. Pruning for form is best done in winter or early spring before buds swell when tree energy reserves are high and the tree is dormant. Heavy pruning just after the spring growth flush should be avoided. This is when trees have just expended a great deal of energy to produce foliage and early growth. Removal of a large percentage of foliage at this time can stress the tree. Some trees, such as maples and birches, tend to “bleed” if pruned early in the spring. Although unattractive, research has shown that this has little negative effect of tree growth. Normally, this problem stops within a few days.

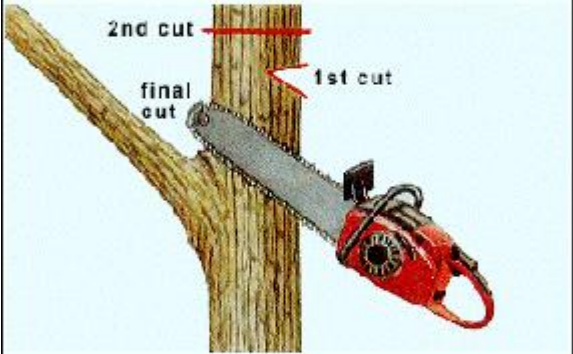
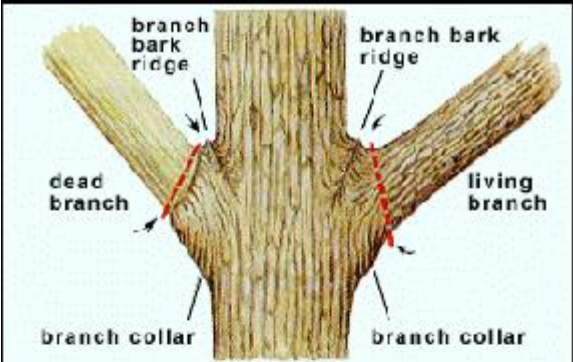
Every pruning cut should be made carefully, at the correct location, leaving a smooth surface with no jagged edges or torn bark. The cut should be made just outside the branch collar. A branch collar is defined as the “shoulder” area where a branch joins another branch or trunk created by the overlapping xylem tissues. This location of cut is in contrast to a “flush” cut which is made inside the branch bark ridge and collar. Flush cuts result in a larger wound to the tree and also expose the trunk tissues to the possibility of decay. Large or heavy limbs should be removed using three cuts. The first cut undercuts the limb one or two feet out from the parent branch or trunk. This cut needs only to be one or two inches deep. This prevents the branch peeling or tearing bark as it is removed. The second cut is the top cut which is usually made slightly further out on the limb than the undercut. This cut goes through the limb which allows the limb to drop smoothly when the weight is released. The third cut is to remove the stub to the branch collar. If it is necessary to reduce the length of a branch or the height of a leader, the final cut should be made just beyond the branch bark ridge of the branch being cut to. It is important that the remaining branch be no less than 1/3 the diameter of the branch being removed and with enough foliage to assume the terminal role. This method of size reduction is called “drop crotching”.

On large growing trees, branches that are more than 1/3 the diameter of the trunk should be well spaced along the trunk (at least 18 inches apart). Be sure to maintain one half of the foliage on branches arising in the lower 2/3 of the tree. Mature trees should require little routine pruning. A widely accepted rule of thumb is never to remove more than one fourth of a tree's leaf bearing crown. Removing even a single, large diameter limb can create a wound that the tree may not be able to close. The older and larger a tree becomes, the less energy it has in reserve to close wounds and defend against decay or insect attack. The pruning of mature trees is usually limited to the removal of dead or potentially hazardous limbs.

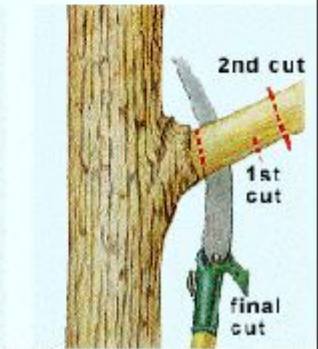
When pruning young trees, it is important to develop a structurally strong tree with evenly spaced branches and a sturdy, tapered trunk. Properly trained young trees will grow into strong, healthy mature trees that should need very little pruning as they mature. Don't remove lower branches for 1 to 5 years to help increase the trunk diameter. The height of the lowest permanent branch depends on the function of the tree. Branches may be removed to provide visibility or they can be retained to provide wind protection. Make sure to select permanent branches evenly spaced around the trunk. The goal of structural pruning is to maintain the size of permanent lateral branches to less than one-half the diameter of the parent branch or trunk.

Trees should never be topped. Topping is the removal of branches without regard to where other branches attach, usually leaving stubs. Topping is usually done to gain clearance from an obstruction or to reduce a tree's size. Sometimes cuts are made where a branch is attached, but the remaining branch is too small to assume dominance. Quick regrowth, combined with decay in the stubs, leads to poor tree health and potential hazards. Unfortunately, there is no long term way to keep a tree small and healthy if it is naturally large. If a tree needs to have such drastic size reduction, removal should be considered. Tree selection, planting the right tree in the right place, is important when placing a tree in a given site.

Illustration below came from a USDA Forest Service, Northeastern Area State and Private Forestry publication titled "How to Prune Trees". Illustration by Julie Martinez, Afton, MN



B. Cutting a small branch



C. Cutting a larger branch