

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE GENERAL SPECIFICATION**

**TREE/SHRUB PRUNING**

(Ac.)

**CODE 660**

**GENERAL SPECIFICATIONS**

Procedures, technical detail, and other information listed below provide additional guidance for carrying out selected components of the named practice. This material is referenced from the conservation practice standard for the named practice and supplements the requirements and considerations listed therein.

**GENERAL DESIGN INFORMATION**

Pruning is the best preventive maintenance a tree can receive. It is critical for trees to be pruned to encourage them to develop a strong structure. Too many young trees are pruned improperly or not pruned at all for several years. By then it may become a major operation to remove bigger branches, and trees may become deformed.

**Equipment**

Proper tools are essential for satisfactory pruning. The choice of which tool to use depends largely on the size of branches to be pruned and the amount of pruning to be accomplished.

The most commonly used tools for pruning trees include hand pruners, lopping shears, pruning saws, chain saws and pole pruners. An ax should never be used for pruning purposes.

- Hand pruners are used to prune twigs or small branches (generally under 1/2 inch diameter).
- Slightly larger branches may be cut with lopping shears (generally up to 2 inches).
- For branches too large to be cut with a hand pruner or lopping shears, pruning saws must be used. A pruning saw is preferred over a carpenter saw, because it is less likely to bind when cutting green wood and the teeth are designed to cut on a "pull stroke".
- Chain saws are preferred when pruning branches larger than 4 inches.
- Pole pruners can be used to cut branches beyond reach.

Tools should be clean and sanitized, as well as sharp. Although sanitizing tools may be inconvenient and seldom practiced, doing so may prevent the spread of disease from infected to healthy trees on contaminated tools. Tools become contaminated when they come into contact with fungi, bacteria, viruses and other microorganisms that cause disease in trees. Most pathogens need some way of entering the tree to cause disease, and fresh wounds are perfect places for infections to begin. Microorganisms on tool surfaces are easily introduced into susceptible trees when subsequent cuts are made. The need for sanitizing tools can be greatly reduced by pruning during the dormant season.

Sanitizing should be practiced as follows: before each branch is cut, sanitize pruning tools with either 70% denatured alcohol, or with liquid household bleach diluted 1:9 with water (1 part bleach, 9 parts water). Tools should be immersed in the solution, preferably for 1-2 minutes, and wood particles should be wiped from all cutting surfaces. Bleach is corrosive to metal surfaces; therefore tools should be

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

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thoroughly cleaned with soap and water after each use.

### **Method/Technique**

When deciding how much to prune a tree, as little as possible is often the best. All prunes place stress on a tree and increase its vulnerability to disease and insects. Pruning more than 25% of the crown should not occur. After pruning, the ratio of the living crown to total tree height should be at least two-thirds (e.g., a 15 ft. tree should have living branches on at least the upper 10 ft.). Pruning more can risk fatally damaging a tree.

Prune to shape young trees, but do not cut back the central leader. Remove crossing branches and branches that grow back towards the center of the tree. As young trees grow, remove lower branches gradually to raise the crown, and remove branches that are too closely spaced on the trunk. Remove multiple leaders on evergreens and other trees where a single leader is desirable.

The principle behind pruning small twigs is to always cut back to a bud which is directed outward and will produce new growth.

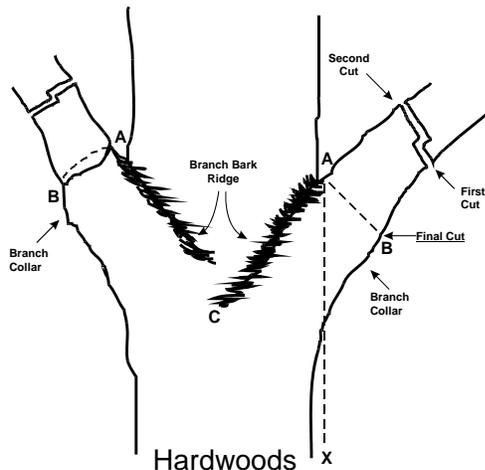
Proper pruning cuts on small branches are made at a node, the point at which one branch or twig attaches to another. In the spring of the year growth begins at buds, and twigs grow until a new node is formed.

When pruning small branches with hand pruners, make sure the tools are sharp enough to cut the branches cleanly without tearing. Branches large enough to require saws should be supported with one hand while the cuts are made.

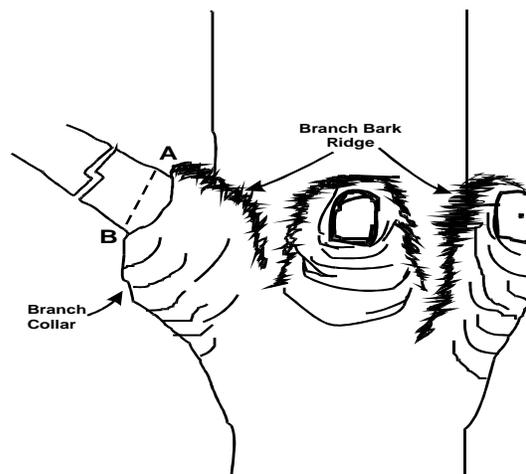
To remove large branches, three or four cuts will be necessary to avoid tearing the bark. Often even on smaller limbs, the weight of the limb will split the limb at the halfway point and rip or peel the bark, leaving a gaping wound. Prune large branches according to the following steps using **Figures 1 and 2**:

1. Stub the branch to be pruned by making the first cut on the underside of the branch about 18 inches from the trunk. Undercut one-third to one-half way through the branch. Make the second cut an inch further out on the branch; cut until the branch breaks free, leaving a stub end.
2. Locate the branch bark ridge.
3. Find **A** (outside edge of branch bark ridge).
4. Find **B** (swelling where branch meets branch collar). If **B** is difficult to determine, drop a line from **A**: the angle **XAC** is equal to the angle **XAB** (see figure 1).
5. Make the final cut on line **AB**.
6. Do not cut behind the branch bark ridge.
7. Do not leave stubs.
8. Do not cut into the branch collar.

When pruning, remember to make your cuts on the outside of the branch collar. The branch collar is a raised donut shaped area surrounding each branch where it attaches to a larger branch or the trunk. The branch collar contains cells that rapidly divide to cover up new cuts. These cells in the branch collar also produce defensive chemicals that inhibit disease and insect invasion. When a correct cut is made leaving the branch collar, a slight bump will be left above the trunk surface. This slight bump will become smooth as the trunk expands in the years to come and the cut is covered over.



**Figure 1.** Hardwood pruning



**Figure 2.** Conifer pruning

## Timing

### Deciduous Trees

In general, the best time to prune most deciduous trees and shrubs is during late winter or early spring after the coldest part of the winter has passed (February, March and early April), before they begin to leaf out. It results in a vigorous burst of new growth in the spring and should be used if that is the desired effect.

Pruning in late winter also minimizes sap loss and subsequent stress on the tree and leaves fresh wounds exposed for only a short length of time before new growth begins to seal the wound. Another advantage of dormant season pruning is that it is easier to make pruning decisions without leaves obscuring branch structure. Pruning at the proper time can also help minimize the risk of fungus infection or insect infestation as both fungi and insects are likely to be in dormancy at the same time as the tree.

Some trees, however, tend to "bleed" or exude large quantities of sap when pruned in late winter or early spring. While oozing sap is not harmful to the tree and will cease when the tree leafs out, it can create a sticky, dirty mess. January and July are the best months to prune trees known as "bleeders", which include: willow, maple, elm, birch, dogwood, walnut, and mulberry. During January and July, trees have the lowest sap flow. Pruning during these months allows the tree to block off the cut, reducing future sap flow from the cut.

The least desirable time to prune trees is in the spring as they are leafing out. At this time, the tree's energy reserves are low and the bark "slips" or tears easily. Another poor time to prune is during leaf drop in the fall.

To prevent the spread of oak wilt, avoid pruning oaks from April 1 to July 1. Pruning oaks during this period may attract sap beetles carrying the oak wilt fungus to the pruning cuts and transmit the disease to healthy trees. Recent wounds and the chemical scents they emit can actually attract insects that spread tree disease. If oaks are wounded or must be pruned during these months, apply wound dressing to mask the odor of freshly cut wood so the beetles that spread oak wilt will not be attracted to the trees.

Dead, diseased, damaged, or rubbing branches can and should be removed at any time, for tree health and safety.

Minimal pruning should be conducted at tree seedling planting time because the young tree needs all of the stored energy (in the wood) and energy-making ability (in the leaves) it can get.

Once the tree is established, it becomes important to begin pruning to ensure good form later in life. Begin pruning a tree during the dormant season following planting.

Pruning generally continues through the next three to five years, and should be complete within eight to 10 years.

If a quality seedling is not apparent after 3 growing seasons, cut the tree off 1 inch above the ground during the dormant season. After stump sprouts appear, select the best sprout to leave and remove all others.

### **Coniferous Trees**

Evergreen or coniferous trees generally need less pruning than deciduous trees. Corrective pruning for evergreen trees consists mainly of dead, diseased, or damaged branch removal. Most evergreen pruning is done for corrective reasons, so seasonal timing is not as important as it is for deciduous species. Pruning during dormancy is the most common practice and will result in a vigorous burst of spring growth and minimize sap and resin flow from cut branches. Whenever unexpected damage from vandalism or bad weather occurs, prune immediately.

Whenever possible, avoid pruning evergreen trees in late summer and early fall. Pruning at this time can stimulate new growth which may not harden off before winter, and thus may be damaged or killed by the cold.

### **Fruit Trees**

The best time for pruning fruit trees is in January, February, or early March. Pruning will slightly reduce the winter hardiness of the trees, therefore do not prune in early winter in advance of the coldest weather. It is better to prune during bloom than to prune too early. Delaying pruning also allows you to assess winter damage to the flower buds and to leave more flower buds when pruning, if necessary. Pruning in late summer and early fall may stimulate new growth, which has little time to harden before cold weather comes. The cold can harm this tender new growth, and the tree may need more pruning in spring to remove the damage.

Oklahoma Cooperative Extension Service guidance shall be referenced for more detailed timing and methods for various species of fruit trees.

### **Christmas Tree Plantations**

Few trees grow naturally into a desired Christmas tree form. Generally the crown should be cone-shaped with the diameter of the base about two-thirds as wide as the overall height.

To achieve the desired taper with a single main stem and desirable fullness, shape by pruning and shearing. Shearing is the cutting back of the current year's growth of the leader and lateral branches and is typically conducted with a machete. Pruning is the removal of undesirable wood older than one year, such as diseased, dead or damaged wood or forks.

Begin shaping when trees are in their third or fourth year or when the tree averages 2 1/2 feet in height. This shaping consists of pruning to remove forms and some shearing on precocious leaders. The following year, shear the terminal 10-12 inches with a 45 degree angle cut. Shear the laterals to approximately 2/3 the length of the leader. Repeat this procedure until the tree reaches a marketable height. The year the tree is to be harvested, shear only lightly to maintain form.

The time for shearing varies with species. If shearing is done too early, the tree will continue growing and not set buds at the cut point. If shearing is done too late, the resulting buds will be few and weak. Shearing at the proper time controls the distance between branches, while increasing the number of buds (next year limbs).

Scotch pine and Austrian pine make a single flush of growth in late spring. The new growth has buds at only the tips of the new shoots. Cut the terminal to 12 inches or less with a 45 degree angle cut. Make the lateral cuts parallel to the sides of the tree. Shearing should be done during the last week of May or the first 3 weeks of June. For healthy, vigorous trees, shear when the needles on the new growth are half the length of the old needles.

Virginia pine must be shaped twice each year during late May or early June and again during August. Shear the new growth before it hardens. This is about the time the new needles are evenly spaced on the new growth. The year of anticipated sale of the tree, the August shearing should be light. Cut the terminal to approximately 8 inches at a 45 degree angle cut.

## **Root Pruning**

Root pruning can be used to sever below ground woody roots projecting into adjacent fields that are competing for plant moisture and nutrients.

Use a tractor with at least 70 HP to pull a root plow at the desired depth. Use a standard root plow with a vertical cutting bar capable of reaching a depth of 24 inches. Use two passes to sever the roots. The first pass should be 12 to 15 inches deep. The second pass should be 20-24 inches deep in the same furrow.

The plow furrow should be 2 feet past the drip line of the tree row in the cropland field but no closer than 15 feet from the trunks of the trees.

Underground utilities shall be checked for depth and location prior to root pruning.

## **Wound Dressing**

Tree sap, gum and resins are the natural means by which trees combat invasion of pathogens.

Research has indicated that wound dressing is not normally needed on pruning cuts. Wound dressings will not stop decay or cure infectious diseases. They may actually interfere with the protective benefits of tree gums and resins, and prevent wound surfaces from closing as quickly as they might under natural conditions. Although unsightly, sap flow from pruning wounds is not generally harmful; however, excessive "bleeding" can weaken trees. A good, clean, unpainted pruning cut will normally callus faster than a painted one.

## **Safety**

Take proper safety precautions at all times. Hire a professional arborist to remove big limbs, high branches, and any other tree job that you are not prepared to do.

If a power saw is needed, experience is critical; hire a professional arborist who is insured against personal injury and property damage, if necessary. One should not climb trees with pruning tools unless experienced or when a proper safety harness is used. When climbing a ladder to reach limbs, have someone hold the ladder or tie it in place before beginning to work.

Never prune trees that are touching or near utility lines; instead consult your local utility company.