

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
TREE/SHRUB PRUNING

(Ac.)

CODE 660

DEFINITION

The removal of all or parts of selected branches, leaders, or roots from trees and shrubs.

PURPOSE

- Improve the appearance of trees or shrubs, e.g., ornamental plants and Christmas trees.
- Improve the quality of wood products.
- Improve the production of plant products, e.g., nuts, fruits, boughs and tips.
- Reduce fire and/or safety hazards.
- Improve the growth and vigor of understory plants.
- Adjust the foliage and branching density or rooting length for other specific intents, such as wind and snow control, noise abatement, access control, and visual screens and managing competition.
- Improve the health and vigor of woody plants e.g. disease, insect and injury management.

CONDITIONS WHERE PRACTICE APPLIES

- On any area of trees and shrubs where removing all or parts of branches enhance the beauty and/or safety.
- On Christmas trees and other potentially high value species grown for select lumber or veneer.
- Where pruning would improve the efficiency of the plants in a windbreak.
- To remove diseased or insect infested portions of trees.
- Where lower limbs need to be removed to create a fuel break and to protect an area from wildfire.

CRITERIA

General Criteria Applicable To All Purposes

The pruning method and time will match the limitations of the site and strive to protect the remaining parts of the plant from damage. It will achieve purposes for the specific species and be conducted in a safe and efficient manner.

Pruning or shearing will not adversely reduce the growth and vigor of the tree or shrub for the intended purpose. When a large amount of the crown is removed, it should be done in two or more timed intervals to minimize plant stress.

Debris and vegetative material left on the site after treatment should not present an unacceptable fire or pest hazard or interfere with the intended purpose or other management activities.

It is not necessary to paint protective coatings on the wound after pruning.

Burning of removed vegetation shall follow the criteria listed in the Oklahoma NRCS Prescribed Burning (338) standard.

Generally the best time to prune woody plants is late winter or early spring while the plants are still dormant. Evergreens should be pruned in the early spring or in early summer after their new growth has hardened.

Additional Criteria to Improve the Quality of Wood Products

Restrict pruning to trees with a high market value like Black Walnut, Black Cherry, Pecan, White Oak, and the red oaks.

Prune to eliminate multiple leaders, narrow branch angles, crossed limbs, and deformed branches.

Equipment

Hand clippers, pruning shears, or a saw can be used for pruning. An ax should never be used for pruning purposes. 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 which makes working from a ladder safer. Tools should be disinfected after their use on each plant that has been pruned due to disease damage.

Prune trees according to the following steps using **Figures 1 and 2**:

1. Locate the branch bark ridge
2. Find **A** (outside edge of branch bark ridge).
3. 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). Stub the branch to be pruned using a first cut from below and a second cut from above.
4. Make the final cut on line **AB**.
5. Do not cut behind the branch bark ridge.
6. Do not leave stubs.
7. Do not cut into the branch collar.

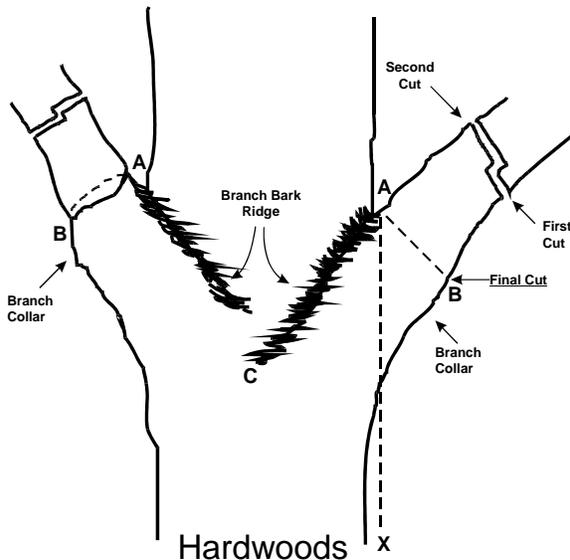


Figure 1. Hardwood pruning

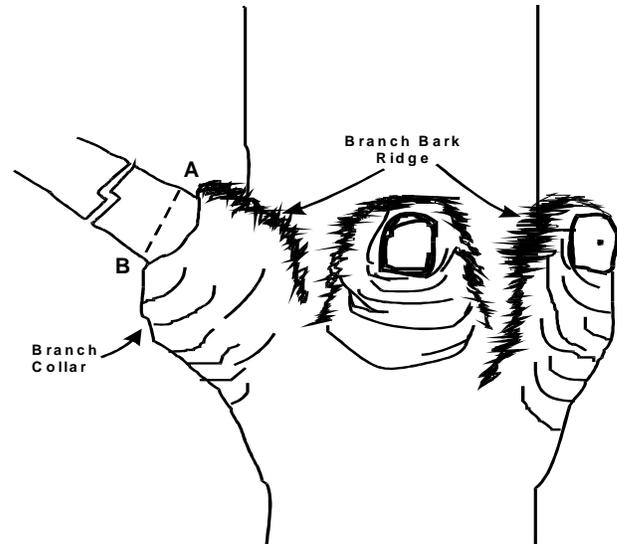


Figure 2. — Conifer pruning.

Pruning Methods for Commercial Hardwood Trees (Except Black Walnut)

Three-Step Method

1. **First Pruning** - Prune trees 7' to 10' in height.
2. **Second Pruning** - Prune trees 12' to 15' in height.
3. **Third Pruning** - Prune trees to 17' - 20' height.

Two-Step Method

1. **First Pruning** - Prune trees at 7 to 12 feet in height.
2. **Second Pruning** - Prune trees at 12 to 20 feet in height.

One-Step Method

1. **Only Pruning** - Prune trees at 12 to 20 feet in height.

Pruning Ornamentals

Deciduous trees, except elm, birch, dogwood, and maple, may be pruned during any season. However, pruning early in the spring following full leaf development allows one to visualize the effect the pruning will have on the appearance of the tree. The pruning wound will begin to heal immediately at this time of year.

Elm, birch, dogwood, and maple should be pruned after the trees are in full leaf. Pruning

these species in late winter or early spring causes profuse bleeding.

Evergreens normally do not need pruning except to remove dead or damaged limbs. However, some pruning may be necessary to obtain desired shape. This can be done during any season. Pruning evergreens during the dormant season will tend to attract less insect pests.

Never prune more than 50% of the height. If possible, prune the branches when they are less than 2 inches in diameter.

Never prune more than 50% of the total height of a tree when using any of the above three methods.

Trees over 8 inches in diameter at 4 1/2 feet above the ground (dbh) are usually too large to begin pruning unless they have received natural pruning.

For quality hardwood sawlogs, prune 100 to 125 of the best trees per acre. Pruned trees should be spaced 18 to 20 feet apart.

Pruning for Black Walnut Plantations

Start corrective pruning (pruning for a single leader and straightness) during May or June of the first growing season. Prune excess leaders as necessary through the growing season.

Continue corrective pruning the 2nd and 3rd year. Begin pruning for clear bole length during the third growing season.

Prune no more than 50% of the live crown in any one pruning operation.

Continue pruning until a minimum 6 foot long clear bole is obtained if managing for both nuts and wood. Prune for a 16 foot clear log when managing for wood production only.

Pruning for Black Walnut Natural Stands

Start pruning early when trees reach 3 to 6 inches dbh. Limit pruning to branches less than 3 inches in diameter.

Prune to obtain a 17 foot or more clear bole. Never prune more than 50% of the live crown. Trees more than 10 inches dbh in size ordinarily should not be pruned.

Pruning may be done at anytime of the year, however, late winter and spring pruning before growth starts speeds healing time.

Pruning For Commercial Evergreen Trees (e.g. Christmas Tree Plantations)

Evergreen trees should be shaped by shearing and pruning to achieve the desired taper, a single main stem, and desired fullness.

Begin shaping when tree averages 2 1/2 feet in height. Also, at this time, begin to prune off the lower limbs to a height of 8 to 10 inches above the ground.

The first shaping should be to prune forks and some slight shearing on precocious leaders. The following year, shear the terminal to 10 to 12 inches with a 45 degree angle cut. Shear the laterals to approximately 2/3 of the length of the terminal. 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 years 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 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

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 20-22 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.

CONSIDERATIONS

Pruning and shearing should be timed to minimize disturbance to seasonal wildlife activities.

Review the estimated cost and projected economic benefits of the project before starting a pruning or shearing project.

To maintain plant growth and sustain vigor, pruning and shearing may be done in two or more timed intervals.

Time pruning and shearing to minimize potential damage to the tree bole and stems.

In urban areas special considerations need to be given for safety hazards. Pruning may need to be done to create a fuel break. Limbs removed must be properly disposed of to reduce the risk of fire.

PLANS AND SPECIFICATIONS

Species, site limitations, methods, equipment, season of year, and guides to pruning for the applicable purpose shall be considered. Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

Periodically inspect plant condition and take additional actions as necessary for additional

pruning, pest management, nutrient management, and forest stand improvement.

Comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice.

REFERENCES

OSU Extension Facts No. 5020, "Introduction to Growing Christmas Trees"

OSU Extension Facts No. 6228, "Annual Pruning of Fruit Trees"

OSU Extension Facts No. 6415, "Training Young Shade and Ornamental Trees"

OSU Extension Facts No. 6409, "Pruning Ornamental Trees, Shrubs, and Vines"

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Welsh, D. F. and E. Janne. Undated. Follow Proper Pruning Techniques. Extension Horticulture Information Resource. 12 pages.

Care for Your Trees. Univ. of Illinois, Circular 1059. 1972.

Lateral Pruning. Walnut Notes, North Central Forest Experiment Station. 1988.

Pruning Forest Trees. UMC Forestry Guide No, 5160. 1989.

Shaping Pine Christmas Trees for Quality. UMC Forestry Guide No. 5706. 1972.

Growing Pecans. KSU Horticultural Report MF-1025. Kansas State University. 1992.

Pruning by Plowing. Missouri Conservationist. February 1990.