

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

TREE/SHRUB PRUNING

(Ac.)

CODE 660

DEFINITION

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

PURPOSE

This practice is used to achieve one or more of the following purpose(s):

- Improve the appearance of trees or shrubs, e.g., ornamental plants and Christmas trees.
- Improve the quality of wood products.
- Improve the production of tree/shrub 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 specific intents, such as wind control, noise abatement, access control and visual screens and managing competition.
- Improve health and vigor of woody plants e.g. disease, insect and injury management.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on any area with trees or shrubs.

CRITERIA

Use the following criteria in planning and applying this practice. The general criteria apply to all tree/shrub pruning. Additional criteria may apply based on the intended purpose(s) of the practice.

As used herein:

Pruning is the selective removal of tree branches, stems, roots, buds, flowers, etc.

Shearing is indiscriminate removal of branches, leaders or roots. Shearing is usually appropriate only for hedges and topiaries.

Root pruning is the removal of a portion of a tree/shrub root system. Generally used for horticultural transplanting operations, but can be used to accommodate construction and landscaping in urban areas, and to minimize moisture sapping around cropland fields.

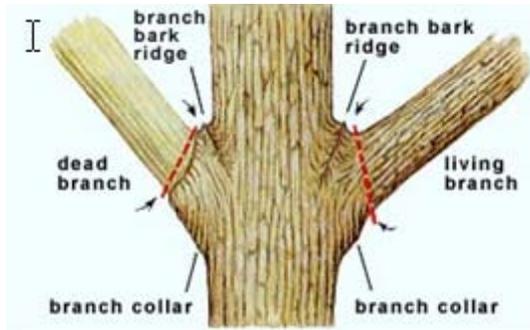
General Criteria Applicable to All Purposes

The pruning/shearing method and timing will match the limitations of the site, achieve purposes for the specific tree or shrub species, and be conducted in a safe and efficient manner.

Equipment commonly used for pruning trees and shrubs includes by-pass hand pruners, pole pruners, pruning saws, and chain saws. Machetes, hedge shears and pruning knives can be used for shearing. For root pruning, shovels are effective for individual trees; for rows of trees in nurseries, U-blades or undercutting blades are used. Equipment specified will depend on the size of tree/shrub to be pruned and the type of pruning to be done. Sharpen and maintain equipment in good condition for worker safety and correct, efficient tree/shrub treatment.

To encourage rapid healing, make all cuts clean and smooth. A proper pruning cut starts just outside the branch bark ridge, angled down and away, and finishes just outside the branch collar (Fig. 1).

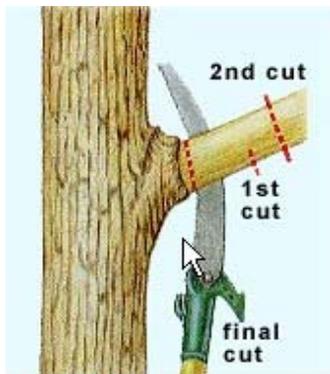
Figure 1: Branch bark ridge and where to prune.



From USDA-FS Brochure, "How to Prune Trees"

Avoid tearing bark when removing large

Figure 2: Three-cut method.



From USDA-FS Brochure, "How to Prune Trees"

branches by using a three-cut method (Fig. 2).

Pruning and shearing should be timed to minimize potential damage to the tree bole/stems and limbs.

Generally deciduous trees, with the exception of elm, birch, dogwood, and maple, may be pruned during any season. However, pruning early in the spring following full-leaf development allows visualization to the effect pruning has on the appearance of the tree/shrub. The pruning wound will begin to heal immediately at this time of the 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, though this is not really a problem.

Never prune trees touching, or near utility lines; instead, consult affected local utility company.

Sufficient herbaceous vegetation must be left following pruning to prevent erosion and other natural resource concerns.

Debris and vegetative material left on the site after treatment will not present an unacceptable fire/pest hazard or interfere with intended purpose and other management activities. Refer to SLASH TREATMENT – NC Practice Standard 384. Burning of pruned limbs, slash and other debris on-site shall follow the PRESCRIBED BURNING – NC Practice Standard 338.

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

Additional Criteria to Improve the Appearance of Trees or Shrubs

Limit pruning of young trees/shrubs to removal of dead and broken branches or removal of multiple leaders; prune to one central leader, if natural tree/shrub form permits. Prune to maintain the desired shape and structure of the tree/ shrub. Target branch stubs, rubbing branches, sucker growth, closely spaced branches and weak crotches for removal.

Christmas Trees - Begin shearing (light clipping of limbs near their ends) to achieve a conical shape when trees are 3-5 years old (approximately 3 feet in height). Continue until trees are sold or marketed.

Additional Criteria to Improve the Quality of Wood Products

Commercial Timber – Restrict pruning to tree species with high timber/veneer market value, growing on high quality sites. Restrict pruning to single-stemmed, well-formed dominant/co-dominant crop trees. Crooked, rough and understory trees should be removed during an intermediate cutting (see FOREST STAND IMPROVEMENT – NC Practice Standard 666).

Begin branch pruning when trees reach 10-15 feet tall or 3 inches diameter at breast height (DBH). Prune branches from the lower ½ of the tree; try to remove branches before they reach 1½ inches diameter. Never remove more than 25% of the live crown in one year. For deciduous trees, target multiple leaders and crooked, crossing or other deformed branches. Pines generally are self pruning; however, widely spaced (< 300 trees/acre) stands may not self-prune sufficiently, requiring pruning to grow clear wood and improve timber value.

Hardwood Natural Regeneration – Pruning may be used to coppice damaged or poorly formed sprouts in late winter or very early spring (cut about 2 inches above ground). Several shoots will appear from dormant buds. Prune again in June/July to select the best shoots.

Additional Criteria to Improve the Production of Tree/Shrub Products

Pruning can improve both the quantity and quality of tree/shrub products such as nuts, fruits, boughs, tips, etc. Always consult a professional for specific pruning recommendations to improve tree/shrub production. The rule of thumb is to prune right after the tree/shrub has finished producing. Generally, cross-branches and dead or potentially hazardous limbs should always be removed.

Spring flowering trees/shrubs produce flowers on last season's growth and should be pruned immediately following bloom. Summer flowering trees/shrubs produce flowers on current year's growth and should be pruned in the late winter before new growth begins.

Additional Criteria to Reduce Fire and/or Safety Hazards

Prune/remove all dead or potentially hazardous limbs.

To reduce fire hazard, remove 'ladder' limbs and fuels that fire can use to climb into tree crowns. Remove one 'ladder rung' by pruning lower tree branches and vines. Depending on height of trees, prune from ground up to an average of three times the height of the lowest fuel (9' for 3' shrubs) while leaving at least 2/3 of the live crown. In some cases removal of fuel may be required in addition to pruning.

Additional Criteria to Adjust Foliage and Branching Density or Rooting Length for Specific Intents such as Wind Control, Noise Abatement, Access Control, Visual Screens and Managing Competition

Adjusting Foliage or Branching Density – Limit early pruning to removal of dead and broken branches, or removal of multiple leaders; prune to one central leader. As trees reach 15 feet or more, prune only rubbing, crossing, broken, diseased or weak-angled branches. Favor branches with strong, U-shaped angles of

attachment. Remove branches with weak, V-shaped angles of attachment.

Adjusting Rooting Length – Trees/shrubs may need to be root pruned to reduce sapping effects on adjacent crops/plants. Prune with a ripper, chisel, subsoil shank or shovel to a depth of 2 feet or more between the trees/shrubs and affected crop at a distance of ½H (height) of the highest tree/shrub at time of pruning. Root pruning can begin when trees/shrubs are age 4-6 years.

Additional Criteria to Improve the Health and Vigor of Woody Plants

Pruning away diseased, insect damaged or injured limbs/branches can improve health and vigor of woody plants. Late winter or early spring is a good time to inspect trees/shrubs/ornamentals for symptoms of disease/injury and to prune affected material. Pruning can keep disease from spreading to other parts of the plant or from spreading to other healthy plants. It is usually best to prune when woody plants are still in dormant stages to reduce possible problems from diseases and insects. Prune the affected limbs/branches along with at least 8 inches of healthy tissue.

Where disease is involved always sterilize your pruning tools between each cut by dipping in a solution of 1 part household bleach 9 parts water. Burn or bury the diseased plant refuse to destroy the pathogens as soon as possible. Prune in dry weather to minimize the spread of the diseases

Root Pruning – Root pruning is the cutting of roots, and is most often used to improve root density for future transplanting. Generally roots are sheared 6 months to a year before planned transplanting of a sapling tree/shrub at a distance just smaller than the planned root ball.

If in doubt, consult a professional for specific pruning recommendations to improve tree/shrub health.

CONSIDERATIONS

Safety Note: Protective leg, knee, and thigh guards (metal, wire, mesh, or nylon fiber) should be worn, especially when using shearing knives. Use safety goggles to protect eyes from falling debris and sawdust.

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

Pruning and shearing tools should be disinfected when necessary to prevent the spread of pathogens.

Review the estimated cost and projected economic benefits before starting a pruning or shearing project. Normally large scale pruning projects are only recommended for high-value trees/shrubs.

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

Debris and other vegetation (biomass) removed may be used to produce energy. Management alternatives should compare the amount of energy required to produce and convert the biomass into energy with the amount produced by the biomass.

Trees on recreational areas and near buildings may need pruning regardless of size. Trees which have recreational or esthetic value may be pruned in the same manner as for commercial wood products. The height to prune is generally the height necessary to allow pedestrian passage, vehicular traffic, and safe visibility.

'Top pruning', removing all limbs of a shade tree to give it a sheared or 'balled' effect - is not a good practice. The vigorous growth that occurs after topping is weak and is easily damaged by wind and ice. Rot and decay of the tree can be accelerated due to increased susceptibility to insects/disease.

Special consideration should be given to safety hazards when working in urban areas.

This practice has the potential to affect National Register listed, or eligible, significant cultural resources (CULTURAL RESOURCES INFORMATION - NC, FOTG Section II). Follow NRCS state policy for considering cultural resources during planning.

PLANS AND SPECIFICATIONS

Specifications for applying this practice and protection of the site shall be prepared and

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recorded using approved specification sheets, job sheets, technical notes, narrative statements in the conservation plan (including references to plans prepared by other agencies or consultants), or other acceptable documentation.

Minimum documentation will include:

- map showing fields or areas where tree/shrub pruning will be done.
- plant material or species to be pruned.
- pruning method(s).
- season of year to prune.
- guidelines to pruning for the applicable purpose as needed.
- site specific needs or limitations that may affect pruning.
- forest management plan with pruning specifications prepared by a registered forester; or, pruning specifications prepared by other professional (horticulturalist, arborist, garden center, etc.) when available.
- statement requiring compliance with all federal, state and local laws.
- review of complexity and controlling factors involved to assign proper plan/design and construction job approval authority.
- required operation and maintenance instructions.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance). Generally O & M operations for this practice involve operation activity.

- Periodically inspect plant condition and take additional actions as necessary, e.g., additional pruning, pest management, nutrient management, and forest stand improvement.
- Protect trees/shrubs from fire and grazing.

REFERENCES

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