



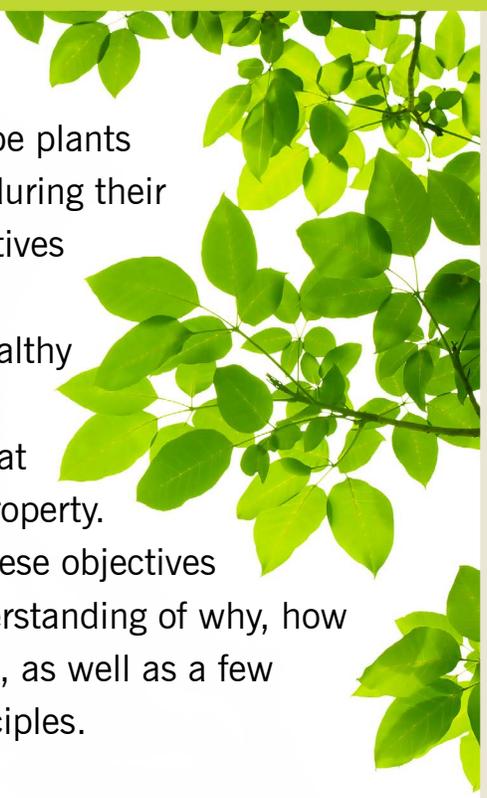
Basic Guidelines for Pruning Trees and Shrubs

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All woody landscape plants will need pruning during their lifetime. The objectives of pruning are to produce strong, healthy and aesthetically attractive plants that complement our property. You can achieve these objectives by gaining an understanding of why, how and when to prune, as well as a few basic pruning principles.



Why Prune?

The leading answer to this question should be for safety reasons. Remove branches that could fall, or any branches or shrubs that interfere with the line of sight on driveways or streets.

Homeowners should not get involved in pruning that requires climbing or working anywhere close to power lines. Allow trained professionals to do that work. If locating a professional is a problem, then contact the NDSU Extension agent in your county to get a recommendation on whom to hire.

When planting a tree, think about how that tree will form as it grows: Will it stay within the available space at maturity? Will the

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branching characteristics have the strength to develop a form suitable for the site? Many times, future maintenance can be reduced significantly if you select the right tree or shrub for the particular location.

Other reasons for pruning are disease or insect control. Pruning for diseases such as black knot of *Prunus spp.* (chokecherry especially) and fireblight on species of the rose family (*Malus spp.* - apple, *Amelanchier spp.* - Juneberry, *Cotoneaster spp.* - cotoneaster, *Pyrus spp.* - pear, *Sorbus spp.* - mountain-ash etc.) will need to be carried out carefully to avoid spreading the disease to healthy parts of the tree or healthy trees.

Always cut 10 to 12 inches below the visible symptoms of these pathogens, preferably during dormancy, and wipe the pruning shears with an alcohol-soaked, hand-sanitizing cloth or a 10 to 20 percent bleach solution to help prevent the spread of these fungal and bacterial pathogens.

Selecting resistant species, limiting nitrogen fertilization or any practice that produces excessive succulent growth will go a long way in minimizing disease problems with most woody plants.

Maintenance Pruning

Annual maintenance pruning, especially on fruit trees, will open the canopy, and prevent crowding and branches from impacting each other. This will allow better air circulation and sunlight penetration, reduce disease problems and often result in a better yield of higher-quality fruit.

Annual maintenance pruning also reduces another concern for the homeowner: branch shedding. Some species, such as cottonwood (*Populus deltoides*), are notorious for branch drop, but most species are prone to it when competition for light is intense.

Branches that do not produce enough carbohydrate from photosynthesis to maintain themselves will die and eventually fall from the tree. Where the break is clean, woundwood or callus is formed, preventing rot; where the break is a tear or rip from high winds or heavy snow loads, the wound seldom heals properly, shortening the tree's useful life. Annual maintenance pruning can

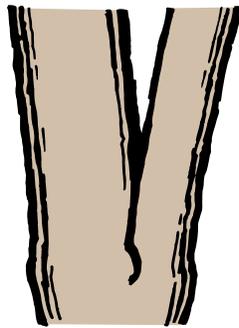


Figure 1. Bad: included bark

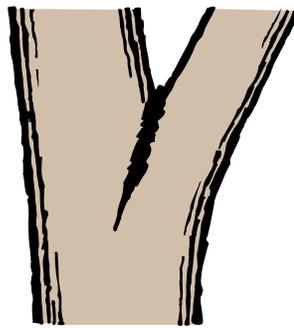


Figure 2. Better: partially included bark

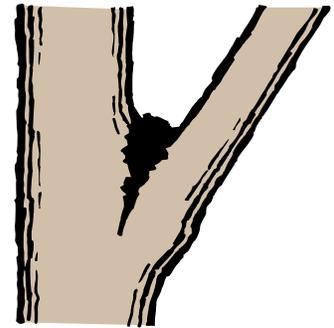


Figure 3. Best: U-shaped branch angle

identify those branches that may be prone to breakage, permitting proper removal.

Making proper tree selections for your property cannot be emphasized enough. The advantage of purchasing a tree from a local nursery is the owner's knowledge of the natural form and other characteristics of the trees the nursery sells.

Most deciduous trees have spherical or decurrent crowns with many lateral branches that may compete for apical dominance. If two branches are competing for dominance (co-dominance), the result often is a weak union between the two. That means the tree likely will tear apart in the future (Figures 1, 2, 3). Remove the weaker of the two branches when it still is small and can be removed with a hand pruner or lopper to assure a single dominant stem.

Pruning Evergreens

Evergreen trees — *Pinus spp.* - pines and *Picea spp.* - spruce — typically have pyramidal or excurrent forms that naturally have a single apically dominant stem, with the lateral branches staying mainly horizontal, rarely competing with the central stem for dominance.

If the central stem becomes damaged, it may result in several lateral stems beginning to compete for apical dominance. In this case, select the strongest of those competing branches and bend it up, staking it or splinting it to give it the advantage in this competition. You can remove the other competitors or diminish their dominance by cutting off their apical buds, or pruning back to a side bud or even back to a different side branch.

After one growing season, the new leader should be established and you no longer need to stake or splint it.

How to Prune

A homeowner's pruning tools should include high-quality by-pass hand pruners, lopping pruners, a pole pruner and a hand pruning saw (Figure 4). As with any hand-held pruning tool, you should wear leather gloves to protect your hands from accidental cuts.

While chainsaws can make the pruning work go quickly, they often are used without any consideration for safety. You should wear proper protective gear, including a hardhat/helmet, eye protection, ear protection, gloves and heavy pruning chaps, when using a chainsaw.

Don't cut branches that are above shoulder height, and both of your feet should remain on the ground. You should leave any pruning up in a tree that requires the use of a chainsaw to a professional arborist.

Newly planted trees should not be pruned immediately. For the first year at least, allow all the branches with foliage to remain; the more branches the tree has, the more carbohydrates it will make during photosynthesis and the faster the tree will recover from transplant shock. After the second or third year in a landscape setting, you can do annual maintenance pruning and remove the "temporary branches" (Figure 5).

In making the cuts on a young tree, the pruning cut location is critical to the tree's growth and wound closure. Make the cuts just outside the branch collar to avoid damage to the trunk that could lead to internal decay. The purpose in pruning any tree is to build a strong scaffold of branches that are evenly spaced to give the tree maximum balance and strength to resist the forces of nature (Figure 6).

The first cut should go only about 25 to 30 percent into the branch to prevent the saw from binding. The second cut should result in a clean "fissure break" to the first cut; the third and final cut should be just outside the branch collar, not into it.

Reduce the weight of large, heavy branches such as those depicted in the sketches before making the final removal cuts. Cut smaller pieces, starting at the end of the branch, to reduce the weight gradually.

The final branch removal should use the three-cut method as shown in the diagram. If the branch cannot be reached with both of your feet on the ground, then turn the job over to an International Society of Arboriculture certified arborist or other certified and insured tree professionals for safety reasons. Ask for and check references before you let them start the work.



Figure 4: An array of pruners for home use.
(M.D. Vaden photo, Wickipedia)

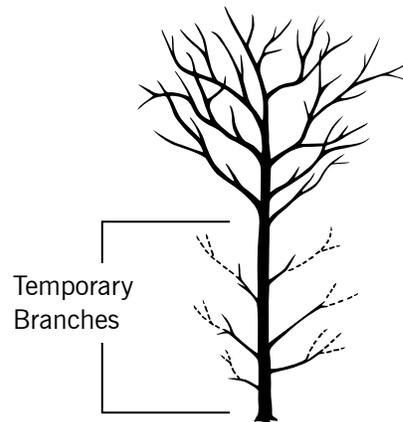


Figure 5. Temporary branches may be removed after the second or third year of successful establishment.

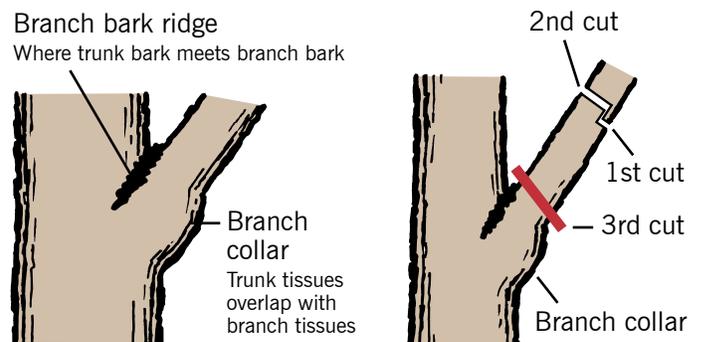


Figure 6. Pruning location is critical to the tree's growth and wound closure.

Keep in mind that small pruning wounds will recover faster. Do not remove more than 25 percent of the leaf area of the tree at any one time; remove even less with older trees. Whether the pruning wound is small or large, research shows that wound dressings do not reduce decay nor speed wound closure. We recommend you do **not** use tree wound dressings.

When to Prune

Much of the pruning that landscape plants need can be carried out in late winter or early spring while they are still dormant. This is true for deciduous and coniferous woody plants. In North Dakota, March is generally the best time to undertake this work to minimize excessive sap flow. Exceptions to this would be trees noted for heavy sap flow such as maples and birches; you can meet their pruning after full leafing out is complete.

Some shrubs bloom only on the previous season's growth: for example, *Forsythia spp.*, *Syringa spp.* - lilac, *Viburnum spp.* - viburnum and *Spiraea spp.* - spirea. If you want them to rebloom the following season, you should complete the pruning immediately after the blooming period is over. Pruning these shrubs while still dormant in the early spring removes potential flowering branches for that growing season.

Figure 7 shows the sequence in gradual shrub renewal or rejuvenation. This work typically is undertaken while the shrub or hedge is in the last weeks of dormancy in late winter or early spring.

This procedure is carried out during a three- to four-year period. It can be accelerated, if desired, by cutting everything back to 4-inch stubs initially. The result will be

a flush of growth that will be vigorous and full. Summer flowering shrubs such as *Philadelphus spp.* – mockorange and *Potentilla spp.* – Potentilla that bloom on growth produced earlier in the growing season will benefit from renewal pruning, giving them a flush of flowers in late summer.

Evergreens generally have a longer pruning season than deciduous plants. In addition to early spring and midsummer, pruning after new growth has hardened is acceptable for pines and spruce trees. *Juniperus spp.* - junipers and *Thuja spp.* - arborvitae can be pruned up to mid-August.

When a branch is causing safety concerns, you can override the seasonal recommendations for pruning. Go ahead and prune or have the branch pruned by a professional arborist. Safety may be an issue when branches are threatening to fall and cause serious damage to structures or harm to individuals, or they are blocking a view of an intersection or moving traffic.

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Figure 7. Sequences of renewal pruning during a three- to four-year period. This would minimize loss in flower display.

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