

Pruning Forest Trees

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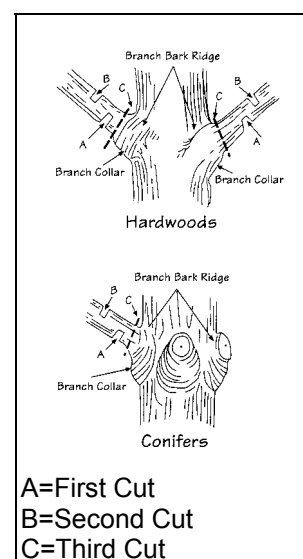
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Pruning refers to the removal of tree branches. Under the proper environmental conditions many tree species are capable of self-pruning. This is common in stands with closed crowns, i.e., stands in which the trees have reached sufficient size to have their branches fill available sunlight areas and thus produce a shaded understory. In these stands the lower branches die and on some species are relatively quickly shed.

Pruning has long been associated with care for urban and ornamental trees. Urban and ornamental trees are seldom exposed to environmental conditions that would encourage self-pruning, and the species planted may not do so even under natural conditions. Here man can utilize pruning to alter trees appearance, increase their resistance to storm damage, and bolster their health and longevity.

In today's competitive wood products markets manual pruning is receiving increased attention from woodland managers as a method of increasing the value of their timber resource. The incentive for woodland managers to prune their forest stands is one of economic recovery. To a large extent, log values are based on the amount of clear wood (wood free of knots) that can be recovered when the log is processed. Since pruning accelerates the speed at which trees eliminate branches and produce clear wood, it increases the value of individual logs. For all practical purposes it is the butt log that can be effectively pruned. Often only the first 18 feet (beyond the stump) is pruned, allowing that section to be used for high value veneer products and making the pruning job more manageable. Pruning height should be based on the length of log required to meet a specific target grade -- pruning too little or too much may dramatically limit the return on your investment.

Pruning consists of removing branches from the trees stem. As such, it necessitates creating a wound through which disease organisms can enter into the tree. This makes it critical that proper pruning techniques be utilized in order to minimize the wound surface. This can be accomplished by cutting close to the branch collar (the raised area between the branch and the stem) without actually damaging it. On small branches this can be accomplished with pruning shears or a single, quick cut with a pruning saw, but on larger branches the 3-cut method may be needed to keep the falling branch from stripping bark from the branch collar and stem (see figure). Note from the figure that if you were to cut flush with the stem you would create a much larger wound than is necessary. On the other hand, a long branch stub would die back and encourage decay, resulting in an unsound knot in the wood and perhaps introducing decay fungi into the tree's stem. Cutting just beyond the branch collar is a good policy for both ornamental trees and forest trees in small woodlands.



From: Selecting, Planting, and Caring for a New Tree, EC 1438

Timing of the pruning operation is as important as the pruning method. Conifers should be pruned in the late summer and early fall. At this time of the year they will produce only small amounts of pitch and will be less likely to attract insects that can invade wounded trees. Also, the levels of damaging insects and fungal spores are at low levels during this time period and less likely to infest or infect the tree. Deciduous trees (hardwoods) should be pruned in the late winter or early spring, before the leaves appear. Hardwoods have different disease problems than the conifers, and during this time period will have the best chance to internally seal the wound and develop new growth during the growth season to cover the wound. Wounds on both conifers and softwoods are best left uncoated. Paints and other coatings rarely provide an effective barrier against insects and fungal agents and may actually trap moisture in the wood and increase decay risk.

Remember that overly-aggressive pruning can stress a tree and make it susceptible to insects and disease. As a general rule of thumb, one should avoid removing more than one-third of a tree's live crown in any given pruning, and conifers should always be allowed to retain at least 35% of their total stem length in living crown. Ornamental trees may respond well to frequent (yearly) light pruning, while woodland stands may be more economically treated with more aggressive prunings (1/3 crown removal) followed by 3 to 5 years without pruning to allow the trees to recover. Pruning response varies among tree species, with some capable of accepting considerably more aggressive pruning scenarios.

Finally, Douglas-fir and the true firs are particularly susceptible to sunscald. This condition arises when tree stems that developed in shaded environments are suddenly exposed to direct sunlight (usually from the west and south here in Oregon). The heat kills a section of the tree's growth membrane (cambium) and can result in large wounds, decreased vigor, and death. For these species limit pruning where they will be exposed to direct sunlight, or prune just one branch whorl per year to allow trees time to adjust to the change in environmental conditions.

For more information on pruning forest trees consult OSU Extension publication EC1457: Pruning to Enhance Tree and Stand Value, available at <http://eesc.oregonstate.edu/>.