

# THE ART of PRUNING for HOMEOWNERS

In order to provide proper tree and shrub pruning, the first thing one must determine is “what is the pruning objective.” While there are many variations on the theme, basically pruning may be divided into two categories – “Training Pruning” and “General Pruning”.

## **Pruning Objectives:**

“Training pruning” is that which is done, usually in the plant nursery, to help establish a proper “Scaffold Branch Structure” for young plants, both trees and shrubs. On trees, the “scaffold branches” are those which present the foliage to the sun. The structure may vary from species to species and training pruning young trees will help encourage proper branch placement. Training Pruning for young plants, trees and shrubs, generally seeks to remove objectionable, interfering, crossing, broken and weak branches while they are small, so as to not increase the chance of infection and disease entering the plant. Removing large, more mature limbs over 2-3 inches in diameter, means that the larger wound will be open to the environment for a longer period of time, which may increase the chance of infection and decay, depending upon the species involved. The smaller the wound, the sooner callus tissue, which is wound response growth, can grow over and seal the wound. Trees do not “heal” wounds; rather they try to “seal” them so as to limit the chance of infection by a pathogen.

“General Pruning” is performed on more mature trees, and includes the following basic categories. They are, in order of priority for the average homeowner:

- Public Safety
- Tree Health
- Aesthetics
- Fruit, Flower and Nut production

Since the category of pruning for Public Safety deals most often with trees and limbs of such size as to be hazardous for the private individual to manage, this scope of work should be performed by a qualified arboreal tree care company. Fruit, Flower and Nut production is another area of special training and should be covered in detail in another article specifically for that subject. This article shall focus on those issues the homeowner will be most likely to address, i.e., pruning to promote tree health and aesthetics.

In order to be able to make the proper determination as to how to respond to the many varying pruning needs, one must understand both the structural nature of limbs, as well as how a particular species of tree will respond to pruning. All pruning cuts are wounds, and while “wound response” may vary from species to species, there are some basic things to know and consider in all pruning.

First, there is a cup shaped zone at the base of the limb in an area called the “Branch Collar”. When properly placed, a pruning cut will evoke a response in this zone that protects the tree from decay moving past this zone into the plant. It involves an alteration of the wood internally to resist decay, plus the growth of a callus ring around, and eventually over, the wound. The limiting factor here is placement and the size of the cut. If over five to six inches in diameter, full closure of the wound becomes less likely. If placed too far beyond the branch collar, the callus ring cannot close due to the limb stub. If the pruning cut is placed behind the “Branch Collar”, the wound response tissue may be removed and decay is almost certain.

So, where is the “Branch Collar” and how do you determine where to cut, and at what angle? In the accompanying “**Detail A**” you will see what is called the “Branch Bark Ridge” and also the general location of the “Branch Collar.” The wound response zone starts at the top of the limb, just at the ridge. The bottom of the response zone is located at the base of the limb at a point determined by repeating the angle of slope of the Branch Bark Ridge (A-B) in the opposite direction (A-C). Often, there will be a swelled area at the base of the limb called the “Branch Collar” (Along A-C), which defines the front (outer) edge of the Wound Response Zone. The final pruning cut should be placed immediately

outside of the “Branch Collar”. If there is no swelled area to define the collar, then the angle for the cut should be calculated as described above from the top of the “Branch Bark Ridge”.

Finally when removing limbs large enough to split and peel into the “Branch Collar”, it is advisable to use the three-step, or “Jump Cut” technique, to avoid damaging the tree by peeling (**See Detail “B”**). This is accomplished by making the first cut, which is an under-cut, approximately a foot beyond the final cut location at the “Branch Collar”. This first cut should be approximately one-half the diameter of the limb. Then the second cut is made on the top of the limb, just beyond the under-cut. When the limb begins to drop, it will peel back to the under-cut and break free without peeling into the “Branch Collar”. Finally, after the weight of the limb has been removed, the remaining stub may now be pruned off without damaging the collar by peeling by making the third cut at the face of the branch collar.

### **Pruning Programs:**

The program may be as simple as removing a specific limb, or portion of a limb, to provide clearance for pedestrian or vehicular traffic, or to provide a clear line-of-site for visual safety. Or, it may be to remove dead, dyeing, diseased, interfering or objectionable branches for the health of the tree or to improve its’ aesthetic appearance. In preparing a pruning program, it is important that one clearly define the objectives so as to achieve the intended result.

### **Common Pruning Techniques of Thinning and Crown Reduction:**

Often our pruning objective is simply “**thinning**” of the interior foliage of a tree to lessen wind resistance or increase light on understory plants. Or, our program may include a “**crown reduction**” pruning to keep a tree or shrub in scale to its surroundings, to provide safe clearance for utilities, buildings, or the like.

Whatever the objective, in developing a pruning program, one should understand how plants respond to pruning. Since these two activities are among our most common pruning objectives, and involve the entire plant, we should understand how to do it properly as the two techniques have vastly different results.

### **Thinning: (Detail C)**

This technique involves the removal of part or all of internal, lateral limbs, leaving the longer parent limb from which the lateral is growing. In making the determination as to where to place the cut, it is best to make them at “Nodes”, points at which limbs branch, rather than mid-limb between nodes. Internodal cuts tend to encourage multiple sprout re-growths. Pruning at a node generally reduces the number of sprouts. Thinning also encourages elongation of the parent limb. This may or may not be a desired result.

Finally, in any pruning operation, you should never remove more than twenty-five percent of the foliage, and that much only if the tree is in good health. Removing foliage reduces photosynthesis (the tree’s food production) and can cause the tree to stress, decline, or possibly die if too much foliage is removed. This is especially true for newly transplanted trees where pruning should be limited to only the removal of dead, damaged and diseased branches.

### **Crown Reduction: (Detail D)**

Crown reduction is just that, pruning the longer leaders (parent limbs) back to a lateral of proper size. Eventually the lateral will assume the role of the parent limb. Therefore it should be properly positioned to grow in the desired direction and of sufficient size to assume the role of the main stem. Generally, the recommended size for the remaining lateral is no less than one-third to one-half the diameter of the parent limb that is removed. It is also very important to remember that the larger the pruning wound, the more likely that infection and future decay may affect the structural integrity of the limb. This is especially true in decay prone trees, such as Laurel and Water Oak, when the wound is over two to three inches in diameter. Therefore, it is better to do “Crown Reduction Pruning” while the tree is young, rather than on older, mature trees.

One of the side effects of crown reduction is more aggressive growth of the interior laterals. This is due to the removal of the terminal bud at the end of the main leader. The terminal bud in many species produces the hormone auxin, a

growth regulator which inhibits lateral growth on the limb. When removed, lateral growth tends to “fill in” and make the plant denser

In conclusion, not all pruning fits into a specific category, nor does it all happen overnight. Often it will be a combination of reasons that determine the pruning program, using various techniques, over successive seasons. You may wish to both thin and reduce the size of an ornamental tree or large shrub. You may desire to severely prune back for rehabilitation or reinvigoration reasons (which may involve long term follow up training pruning). Annual pruning may be required to adequately lessen wind resistance or keep an acceptable light level under your tree(s). But in all cases, you will achieve the desired result better if you understand proper pruning technique, plant pruning response, and have thought through all of your options and properly developed your pruning program so that the end result, which may be after years of effort, successfully achieves the desired objective.

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