

PRUNE = "PUH-ROON"

Pruning requires more skill and knowledge than most other landscape management practices. When done properly, and at the right time, pruning results in healthy, vigorous trees, improved growth form, and optimum beauty in the landscape. When pruning, it is important to know where to make proper cuts, and how and when to prune for maximum benefits.

This training will discuss the basic principles for successful pruning of ornamental trees. While there is not enough time to discuss the pruning techniques for each individual plant species in the landscape, it will provide some pruning guidelines that can be applied to a wide variety of trees.

After planting, proper pruning is the next step toward healthy, well-formed ornamental trees in the landscape. It involves both an art and a science: the art involves making the pruning cuts properly, and the science involves knowing how and when to prune for maximum benefits. Correct pruning will increase the tree's structural strength, and accentuate a tree's natural features.

Prune trees when they are young to develop a good basic branch structure that will ensure healthy, functional trees. This type of early pruning and training will reduce the possibility of excessive storm damage, and extend the life of these valuable shade trees.

Every pruning cut should be made with an objective in mind. Some of the most obvious reasons to prune include removal of dead, diseased, or broken branches.

Before pruning, make certain you have the right tool for the task, and that your tools are clean and sharp. Hand pruners, loppers ("LAH-PERS"), and hedge shears ("SHEERS"), are the basic tools for pruning most shrubs. Power pruners and chainsaws are sometimes used for specific tasks. When pruning trees, a ladder is an essential tool to be able to reach higher up into the canopy. Before using any hand or power tool, make certain you understand the necessary safety procedures, and wear the appropriate protective clothing and gear.

The diameter of the branch to be removed determines which specific tool should be used. Small branches up to  $\frac{3}{4}$  (three quarters) of an inch in diameter, can be cut easily with hand pruners. Scissor-type or bypass-blade hand pruners, are preferred over the anvil type. Bypass pruners make cleaner, more accurate cuts. Loppers should be used for branches smaller than  $1\frac{3}{4}$  (one and three-quarters of an) inch. Branches up to 2 inches in diameter should be cut with a pole pruner or pruning saw. Handsaws can be used for branches up to 4 inches in diameter.

Before you begin pruning, you need to familiarize yourself with a few horticultural terms which will help you understand timing and techniques of pruning. These terms relate to the biology and growth of woody plants. Woody plants are ones that develop woody stems, branches, and

trunks. The main difference between shrubs and trees is size; trees are typically larger than shrubs.

When a seed germinates and grows, only one growing point exists: the apex or terminal bud. As the new shoot elongates, structures called nodes are formed. A node is the area on the shoot where a leaf and bud, or buds, are attached. One to three lateral buds are produced at each of these nodes. Growth of lateral buds is directed by the terminal bud, which produces a hormone called auxin ("OX-IN"). Auxin moves downward in the shoot, (toward the earth's center), from the shoot apex, and inhibits the growth and development of lateral buds. When the terminal bud is removed, the buds nearest to the cut are released, and they begin to develop.

The main stem of a tree is called the trunk. Spaced along the trunk are branches. The lowermost ones are called scaffold (SUH-KAFF-OLD) branches. The main upward growing branch is called the central leader, while the smaller branches are called laterals. The branches form the crown. Where a lateral branch meets the main stem, it forms a branch union, or crotch. At the base of the main stem and the lateral branch, is the branch bark ridge, recognized by the rough appearance, and often cracked bark. In most tree species, at the base of the lateral branch, is a raised area called the branch collar. The branch collar contains branch wood and trunk wood, as well as branch protection zone, which is important in promoting fast healing, should the limb be removed.

When a limb is removed, the branch collar forms a complete ring of callus over the cut. If you cut into the branch collar, the callus, also known as woundwood, will not form over the wound. Eventually, callus will completely seal the wound. The smaller the cut, the faster callus will close over it. The larger the cut, the longer the wood is exposed to the outside environment. This exposure leaves them open to attack from insects and diseases. This is the reason why it is recommended that young trees are trained by pruning them often, and removing small diameter limbs as needed.

Often, another strong branch forms next to the main leader. This lateral is called co-dominant. Co-dominant branches compete with the leader and should be either removed or subordinated. The angle formed between the co-dominant branches is small, and does not form a strong union. This makes the branch union structurally weak, and prone to splitting and damage in strong winds. Limbs of nearly equal diameter lead to narrow angles and included bark. Included bark makes the branch union weak, and prone to splitting.

Codominant limbs can be subordinated by removing their terminal or end portion, and slowing their growth. This way, a subordinated limb still contributes to the overall growth of the tree. The subordinated branch becomes a lateral, which grows slower and no longer competes with the leader.

When a branch with a large diameter has been removed to a smaller diameter lateral branch, vigorous vertical shoots form near the cut. These are called watersprouts.

Some trees form vigorous upright shoots that come from the roots. These are called suckers, and should be pruned out. Cherries and plums are examples of trees that are free-suckering. Suckers also result when trees have been pruned too hard.

To reduce breakage of limbs during storms, it is important that the tree is pruned, and trained while young. The goal in training young trees, is to form a strong structure that requires less corrective pruning as the tree matures.

A well-formed tree has a strong, central trunk, with well-spaced branches. Scaffold branches should be spaced vertically along the trunk, at a distance of about 5 percent of the total tree height. A well-formed tree has scaffold branches spaced radially along the trunk.

Let's talk about different pruning cuts. Each is distinctly different, and results in a different growth response, and is applied for a specific reason, and on a specific tree. It is important to understand that no two plants are exactly alike, even if they are the same species, cultivar, or age. Each plant grows in a different environment, leading to different sizes and/or shapes. Therefore, you should evaluate each plant before pruning, to decide which cut is best for the purpose you have in mind.

A reduction cut, also known as a drop-crotch cut, reduces the length of a branch, or stem, by removing the terminal portion back to a living lateral branch of equal or smaller diameter. This generally means cutting back to a lateral branch that is at least one-third of the diameter of the cut stem. Sprouts commonly grow after reduction cut, and should not be removed because they slow decay in the portion of the branch which is retained.

A heading ("HEDD-ING") cut reduces the length of a stem or branch, without regard to the position or diameter of nearby lateral branches. Heading cuts include cutting a small twig, or branch, back to a dormant bud, or cutting a larger stem back to a node, without an existing lateral branch. A node is identified by a slight ridge around the stem. The node is the location of the dormant bud. A heading cut is made across the long axis of the stem, or at a slight angle downward, away from the bud.

A removal cut removes a branch from the trunk, or parent branch, just outside the collar. Compared to a reduction cut, the part of the plant that remains, has a larger diameter than the part that is removed. Removal cuts are used to remove a limb from the trunk, cut a lateral branch from a limb, or cut a smaller branch from a larger one.

The angle of the removal cut is determined by the branch collar location, and shape, and the location of the branch bark ridge. Because the branch collar typically extends beyond the branch bark ridge on top of the branch, cutting to the outside edge of the ridge may not be correct. If a swollen collar is visible, make sure to cut just beyond the swelling, slightly away from the bark branch ridge. Never make a cut through the collar, because this will damage the

branch protection zone inside, and make a larger wound. Cut close to the collar, and do not leave a stub. Flush cuts where the limb is removed all the way to the trunk, should never be done.

Removal cuts are used on dead, dying, or diseased branches, referred to as the “3 D’s”.

On branches larger than one inch in diameter, you will use a jump cut, which involves a series of three cuts. This method is also called the “three cut method”. This technique ensures that the bark will not strip from the trunk.

Cut one: make the first cut, also called undercut, on the lower side of the branch, about 12 to 15 inches from the branch union, (crotch approximately  $\frac{1}{3}$  to halfway through the branch.) Cut two: moving a couple of inches out past the first cut, make the second cut from above, removing the branch. This double cut method prevents the weight of the branch from tearing the bark below the collar. Cut 3: make the third and final cut at the correct pruning point.

Fresh cuts are left untreated, with no wound dressing. With a properly made cut, the branch protection zone will form callus, and close the wound.

Timing of pruning is important. Winter and early spring before buds swell, is the best time to prune trees. Birches, maples, and walnuts, may “bleed” when pruned in this weather. Bleeding is caused by water oozing out of the cuts. This is not a problem, and usually stops within a few days.

When the tree is first planted, only prune dead, and broken branches. Prune young trees early in the tree or branch’s life to develop a strong structure. Avoid pruning large branches, or letting serious problems develop. Generally, prune before branches exceed 2 inches in diameter. Do not remove more than 20 to 25 percent of live wood (wood with leaves) in one year, or more than  $\frac{1}{3}$  (one third) of the tree. Never prune stressed trees, especially during drought, because this will cause further stress on the tree, and may result in tree decline and death.

This summarizes the necessary pruning steps. Remove suckers originating from below-ground roots. Prune low-growing branches that interfere with maintenance. Remove upright growing shoots, or watersprouts. Prune branches that grow inward, or rub other branches. Last, remove or subordinate branches that compete with the central leader for dominance.

Pruning is a very important skill. Pruning is a highly visible landscape management practice. Proper pruning results in quality landscapes, and is living proof of your skill as a landscape professional. In this training, you have learned the importance of pruning, with purpose and an objective, whether it is to control size, to remove dead wood, or to shape a young tree. It is also essential to have the appropriate tool, or tools, for each pruning task. Be sure you know and use the pruning technique that best accomplishes your objective. The result of your effort and

attention to detail is a healthy, attractive landscape, and a beautiful environment that you, and your employer, will be proud of.