

HOW TREES GROW

Like people, trees have preferences. The healthiest trees grow in their preferred conditions, with minimal attention. Some trees like shade. Some like to soak their roots in water regularly. Some trees are really picky about the soil they grow in and others will grow almost anywhere. Trees are generally good natured and will really try to put up with environments they do not like. Placed in unsuitable environments, trees may suffer health problems that shorten their lives. Regardless of preferences, all trees grow the same way.

Trees spread their roots outward and down. Most of a tree's roots are found in the top two feet of soil, extending outward to points far beyond the tree canopy. Close to the soil's surface, the roots are able to absorb oxygen, water and other nutrients from the soil. The smallest roots absorb nutrients, and the bigger roots anchor the tree and transport nutrients. Therefore, the tiniest, most breakable roots need protection from damage at planting time and throughout the tree's life.

Water is essential to the tree's process of digesting its food. A shortage of water will hurt the leaves, which hurts photosynthesis, which will stress the tree and make it vulnerable to disease and insects. Consider the tree an engine powered by sunlight and soil, and cooled by water. Without water, it will quickly overheat and shut down.

Bark provides channels for nutrients to move up and down a tree and provides protective coating for the tree. Tree wounds do not heal. Rather, trees wrap their wounds with bark to protect them from insects and disease. Bark gradually grows into and over a wound until the wound is completely covered. A pruning cut is a wound to the tree, but pruning cuts that follow the proper guidelines will be bandaged most quickly.

A healthy, vigorously growing tree can easily protect itself from insects and disease, but a tree that is stressed by lack of water or disagreeable soil conditions is much more vulnerable. Understanding how trees grow is the key to keeping them healthy.

A field guide
to planting and caring for

TREES

from
Neighbor Woods

1. MAKE SURE THE SITE IS GOOD FOR THE TREE.

Consider the tree's preferences for shade, soil Ph., drainage and moisture. If the tree likes the area, it will grow well with minimum attention.

Consider the tree's mature size when choosing a tree for the site. Underground utility lines can cause planting problems. Arkansas One-call (1-800-482-8998) will mark underground lines for you. **PLEASE CALL BEFORE YOU DIG.**

For further information about tree selection, refer to the NeighborWoods Tree Selection Guide or contact your local state Forestry Commission and the Cooperative Extension Service.

2. PLANT AT THE RIGHT TIME.

Plant deciduous trees any time from late fall to early spring, when they are dormant. Plant evergreen trees during the fall for the best results.

3. MAKE TIME FOR TREE CARE.

During the first two or three years after planting, your tree needs weekly watering and regular inspections for signs of stress.

4. ASK FOR A HELPER.

Ask a friend to assist with handling larger trees. Two people can handle a 6' to 8' tree.

5. HAVE WATER AND TOOLS AVAILABLE.

Water is needed to settle the soil during planting and soak it after planting. Tools needed include a tarp, a sharp-edged spading shovel, a spading fork and a sharp knife. A tarp placed under the soil will keep it from getting lost in the grass. **IF YOUR AREA IS EXPOSED TO WIND**, staking materials (pieces of old garden hose, wire and stakes) may be helpful.

IF YOU'RE PLANTING BARE ROOT TREES:

1. Upon receipt of bare root trees, check for dead or broken roots, and cut them off.
2. Soak the roots in a bucket of water for one to two hours before planting.



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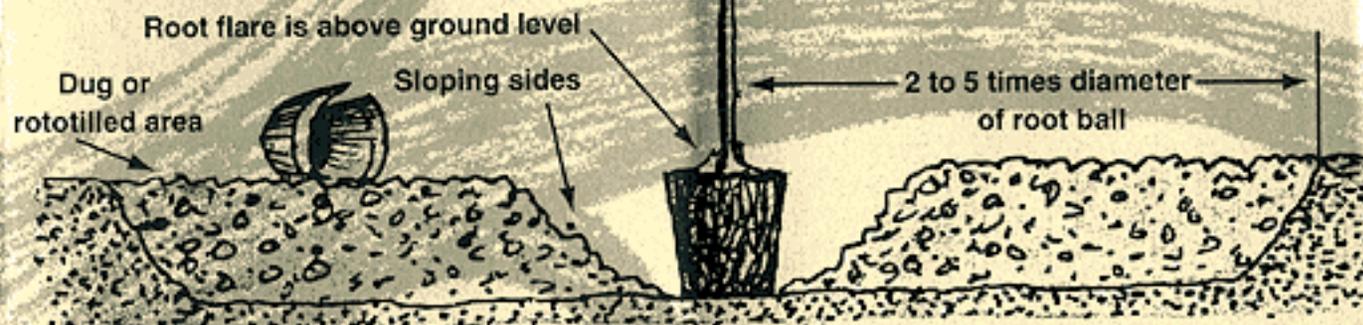
ENCIRCLING ROOTS

To loosen roots that encircle the root ball, make a series of cuts a few inches into the side of the root ball with a sharp knife.

To loosen "pot bound" and severely encircling roots, use the **BUTTERFLY METHOD**. Make a cut at the bottom of the root ball, up into the ball to divide the bottom 1/2 to 2/3 of the root ball into two sections, or "wings". Use a very sharp spade or a knife. When the tree is set into the ground, spread the "wings" over a mound of soil in the bottom of the planting hole.

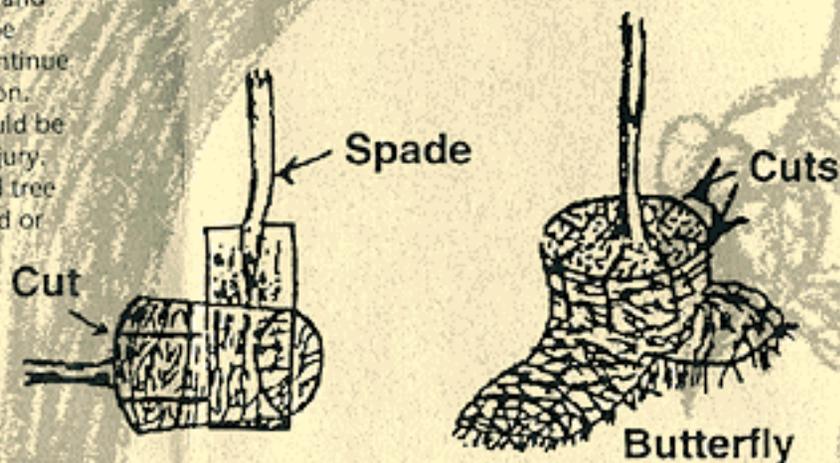
1. Dig a hole.

Mark an area on the ground that is two to five times wider than the root ball width (the wider, the better). Loosen the soil to about 8" deep throughout the area. In the center, dig your hole as deep as the tree's root system and twice as wide. If the sides of the hole are smooth and tight after digging, loosen them with your spading fork.



2. Expose and check roots of container-grown trees.

Remove the container and check the root system. Encircling and "Pot bound" roots should be loosened so they do not continue to grow in a circular direction. Broken and dead roots should be cut off slightly above the injury. (Balled and burlap wrapped tree roots should not be exposed or cut prior to planting)



Set the tree in the hole with the burlap intact. Then remove the cord or wire fastening the wrap. If the root ball is covered with untreated burlap, cut away the top half of the burlap, exposing the top half of the root ball. If the root ball is covered with a synthetic wrap (plastic mesh) or treated burlap (usually green), completely and gently remove the wrap.

BARE ROOT TREES

Before setting the tree in the hole, shovel in and mound up soil in the bottom of the hole. Mound the soil high enough to assure the top of the root system will rest at ground level. Spread the bare roots over the mound, so that they spread out and downward. Don't leave any roots bent upward against the sides of the hole.

- 3. Set the root ball into the hole so that the top of the root system is level with the ground surrounding the hole.**

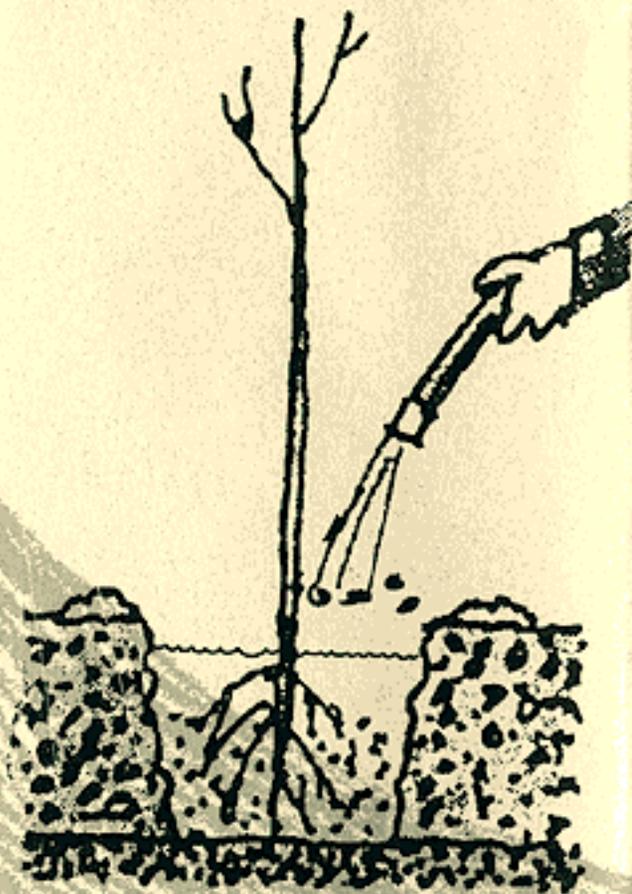
Remember to handle the tree gently, from the bottom rather than from the trunk. If the tree sits too low, remove the tree and add some soil to the hole.

Position the tree so it is straight. Step back from the hole to look and be sure it's positioned the way you want it.

- 4. While supporting the tree to keep it straight, backfill the hole with half the removed soil.**

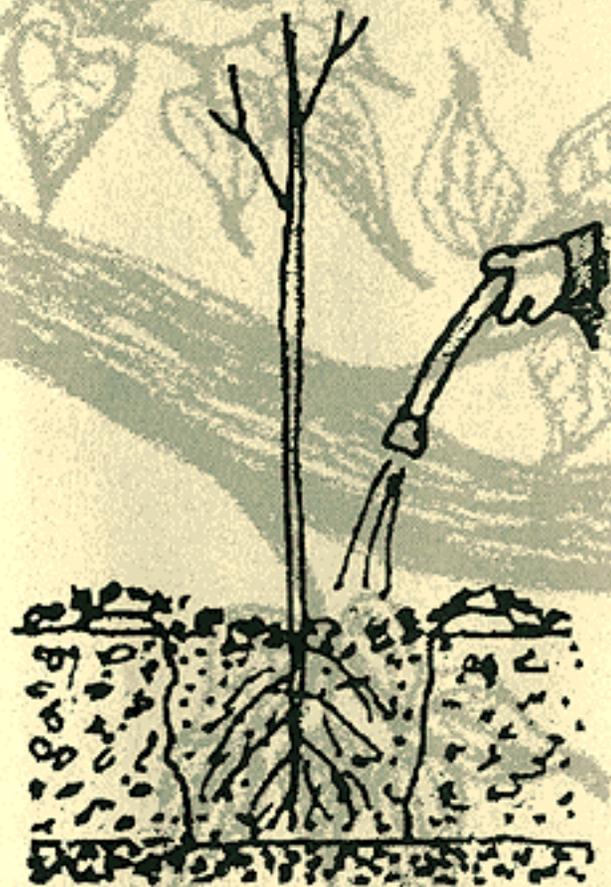
Light tamping with your foot or the back of a spade will lightly pack the soil. If the soil is wet, don't pack it down.

Continue to support the tree, while filling the hole with water. The water will settle the soil around the roots and remove any air spaces.



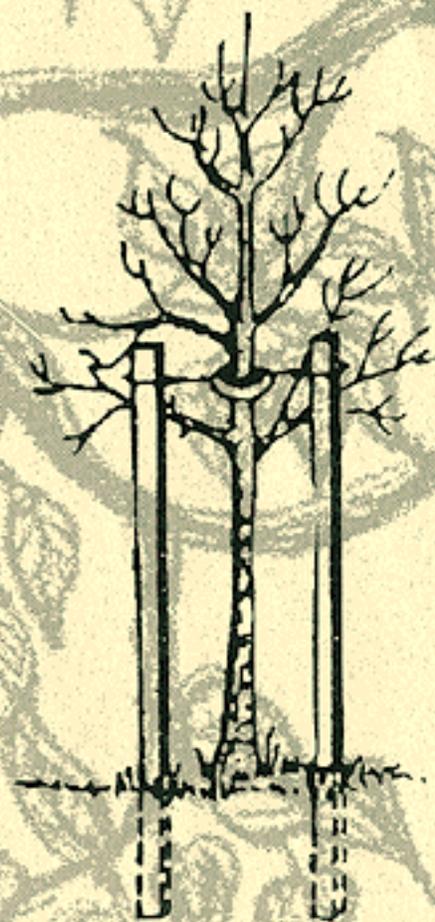
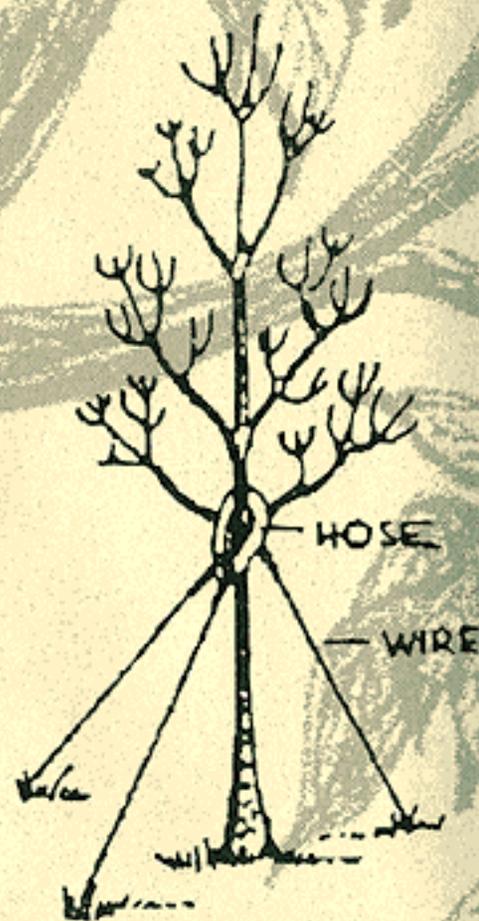
5. Put the rest of the soil into the hole, and add water again.

If you do not have enough backfill soil, add some good topsoil to fill the hole. Do not add compost or peat moss. It is unnecessary, and often harmful, to add any fertilizer during planting.



7. If the tree is in a location open to strong winds, support staking should be done.

One or more stakes can be inserted at the sides of the planting hole. Do not push the stakes through the root ball. Wire, which is sleeved with pieces of old garden hose, may be used to loosely secure the trunk to the stakes. The tree trunk should have some movement. Stakes should be checked regularly to see that they are not causing damage to the tree. Stakes should be removed within 3 years.

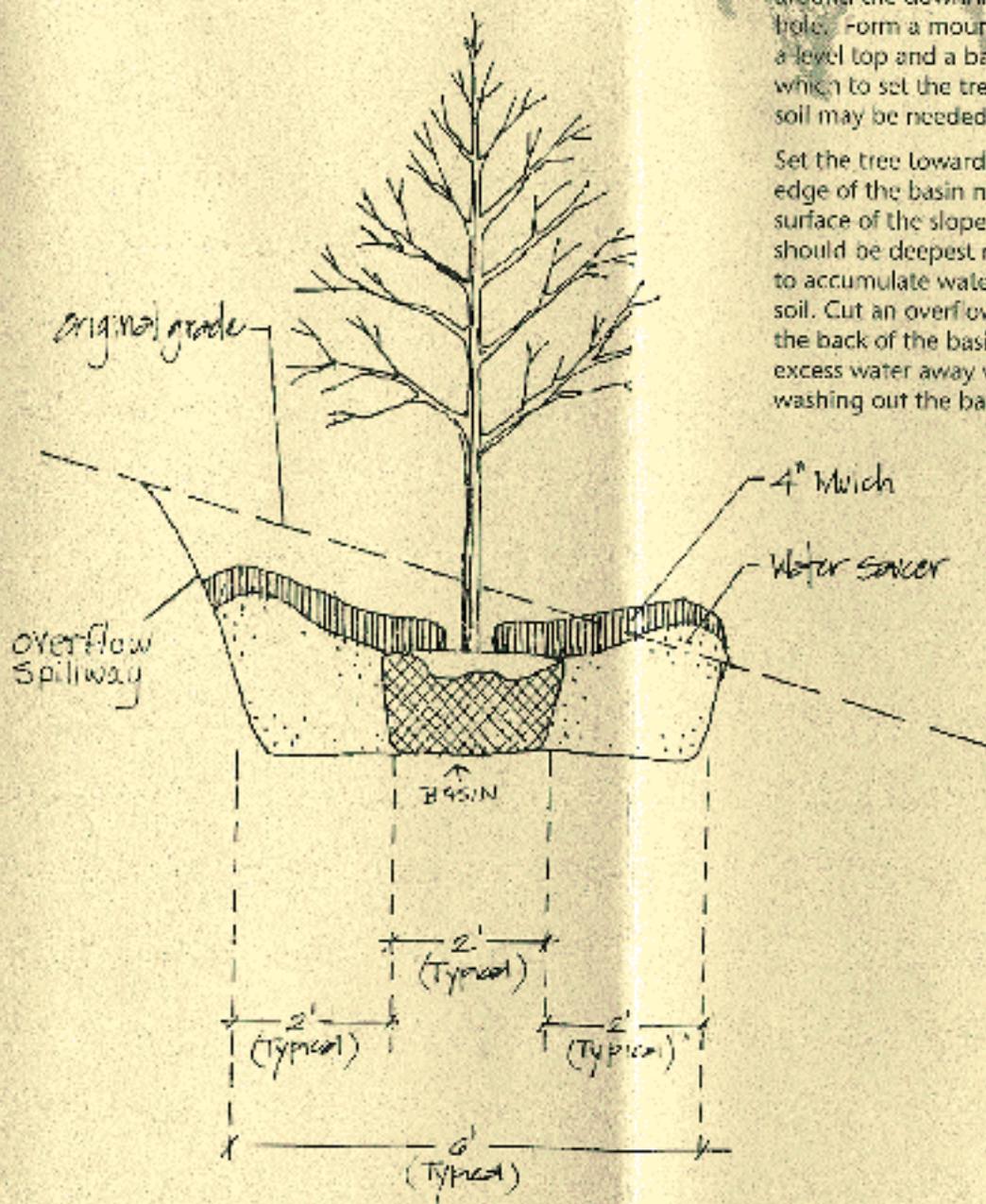
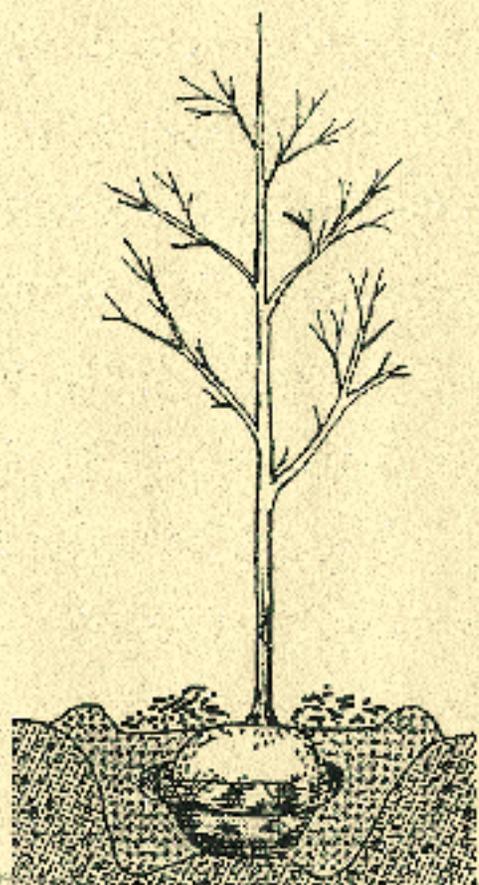


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6. Make a 3" to 4" high earthen dam around the planting hole.

This dam will collect rainwater while the tree is young. A dam is not necessary if the tree has a permanent irrigation system.

The watering saucer formed by the dam can be filled with 3" to 4" of organic mulch to reduce evaporation, keep the root system warmer and deter weeds. Pull the mulch back a few inches from the base of the trunk to discourage bark nibbling pests.



Dig a hole where the tree will be planted and pull soil down to and around the downhill side of the hole. Form a mounded area with a level top and a basin inside, in which to set the tree. Additional soil may be needed.

Set the tree toward the downhill edge of the basin near the original surface of the slope. The basin should be deepest near the back to accumulate water and eroded soil. Cut an overflow spillway into the back of the basin to help drain excess water away without washing out the basin.

Tree Planting Detail - Slope (N.T.S.)

TREE CARE

Transplant shock is experienced by all newly planted trees. Many of a tree's tiny feeder roots are damaged by the planting activity. The tree needs to continue feeding itself, but without a strong root system the tree cannot feed normally. This can kill the tree. To overcome this shock and establish itself in its new environment, the tree needs two to three years of attentive maintenance.

WATERING

A two to three-year watering program is important to establish a newly planted tree. Weekly slow-soaking, when rainfall is low, encourages the roots to spread down and out, taking advantage of soil space. Avoid more frequent and lighter watering because it encourages shallow root growth. A tree watered this way will not become drought-tolerant.

A slow hose (five gallons in thirty minutes) is adequate for watering. Clay soils may require a slower drip for a longer period of time.

Determine how often you need to water. Sandy and woodland soils drain quickly and may require more frequent watering. Heavier, clay soil takes in water more slowly and drains more slowly, requiring less frequent watering. When the weather is hot and dry or windy, water more frequently. Reduce frequency of watering, beginning in mid-fall, and resume the full program again in the spring. Make sure to water during unusually dry spells in winter. Evergreens need water throughout the year.

FERTILIZING

Unless the soil in your tree planting site is deficient in important nutrients, fertilizing the tree is unnecessary. Fertilizer cannot change the fact that trees grow slowly. However, the right amount of fertilizer applied correctly may increase the tree's rate of growth. When it comes to fertilizing, more is not better. Don't increase fertilizer beyond recommended amounts. Trees should not be fertilized if planted in a fertilized lawn area.

Chemical fertilizers and manure contain salts that can harm trees if applied too heavily. Therefore, organic fertilizers are recommended.

If you want to fertilize your new tree, wait until it has had a season to adjust to its new location. Several methods exist to determine the amount of fertilizer needed.

If you like to spray the soil around your trees with liquid fertilizers, discontinue feeding in early August every year.

To test whether it's time to water, check the top six inches of soil around the root ball (don't count a mulch layer as soil). If the soil is dry, water.

TREE TIPS

- Lift and carry trees at the base of the root ball.
- Keep the tree's roots moist while waiting to plant them.
- Use a tarp or wheel barrow to catch the soil removed from the planting hole. Much soil can be lost in the surrounding vegetation.
- Plant in a site preferred by the tree (A healthy tree is a happy, low-maintenance tree)
- Choose a native or naturalized species.

DON'T

- Lift, carry or pull a tree by the trunk.
- Prune a tree at planting, except to remove dead roots and branches.
- Add amendments to the soil. The tree's long-term survival depends on adapting to the soil around it.
- Fertilize the tree during planting. Wait a season before fertilizing.
- Place mulch in contact with the tree trunk. It provides hiding places for critters who like to chew on the trunk.

PRUNING

Pruning wounds a tree, providing opportunities for insects and diseases to move in. Pruning can also remove buds which help stimulate root growth. Therefore, pruning should be performed very carefully and on a limited basis.

When to prune: Prune when the tree is dormant, preferably in the spring. At planting time, prune only to remove dead or damaged branches and roots. After the tree has grown a season, inspect for and prune away root suckers, rubbing branches, and branches that compete with the main trunk. Branches growing nearly as straight up as the trunk should also be removed. Afterwards, check annually for and prune away dead branches, branches that compete with the main trunk, rubbing branches and low-hanging branches.

How to prune: Always use sharp tools and make clean cuts. Sterilize your tools before pruning, rinse the blades in a 10% solution of bleach—one part bleach to nine parts water. Sterilize again between plants, to avoid spreading diseases from tree to tree. On stems and small limbs, make pruning cuts just above a bud, at a 45-degree angle.

To remove limbs smaller than 3/4" in diameter, use lopping shears or pruners. To remove larger branches, perform the three-cut method with a saw. Pruning large branches without the three-cut method leads to severe bark injury.

When pruning limbs, make the cut at top of the branch collar, (the place where the limb meets a larger branch or trunk). The collar spurs growth of new wood to grow over the wound.

Never, never, never top trees. Taking the tops of limbs off all around the top of the tree requires improper pruning cuts that hurt the tree in several ways. The pruning cuts expose the tree to insects and disease. The sudden loss of so many limbs sends signals to the rest of the tree to hurry and compensate for the loss. Several suckers shoot out from the wounds, which are poorly attached to the tree and are vulnerable to winds and storm damage.

3-CUT PRUNING METHOD

1. Make the first cut on the underside of the branch, about 12" from the branch collar. Cut into the branch about a quarter of the way through the branch.
2. Make the second cut 2" to 3" above the first cut. Start at the top and cut completely through the branch.
3. Make the final cut at the top of the branch collar. Support the stub as you cut, to prevent it from dropping and pulling bark away from the tree.

Don't use pruning paint or other wound dressings. The tree will wrap the wound more quickly without them.

