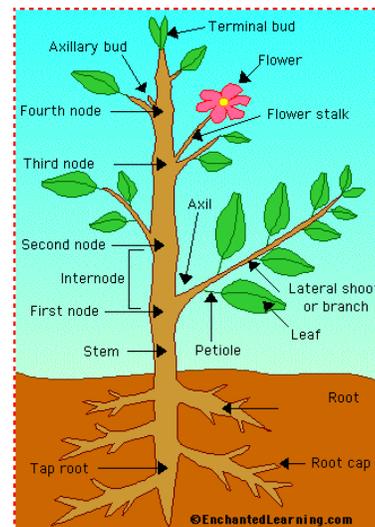
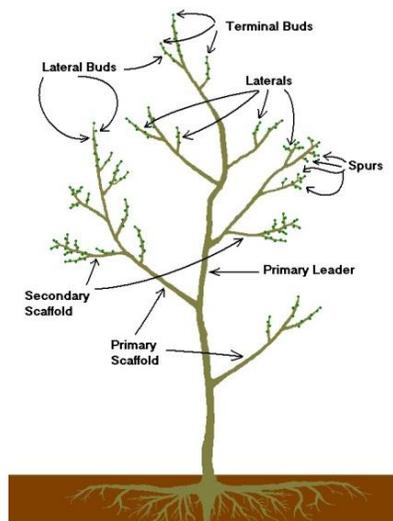


## Pruning Chestnut Trees

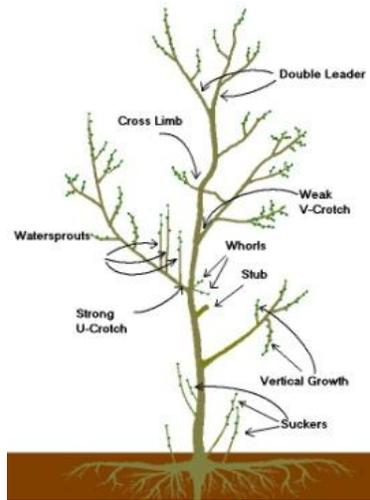
There are many reasons to prune trees. The most important reason is to keep the tree healthy. Removing broken or damaged branches, diseased sections, and keeping a balanced tree are all important reasons to prune chestnut trees. When considering when to prune an orchardist has two times in the annual growth cycle of the tree, winter and summer pruning. Most of the pruning occurs in the winter on dry days. It is during the winter pruning the shape and height of the tree is addressed. During the summer pruning only the growth that is unwanted is removed as well as any diseased portions of the tree. If any branches break during the growing season these should be removed as soon as possible. Do not wait for the winter pruning for their removal. Never remove more than 1/3 of the tree in any one year. Chestnut trees do not produce nuts on shaded branches.

Prune when the tree is dormant, corrective pruning consists of removing broken, interfering, dead, or disease branches. Remove branches that are growing toward the middle of the tree. If any branches are crossing, remove one of them. Prune low limbs that may interfere with mowing or harvesting. Remove limbs and vigorous shoots growing through the center, to allow light and air to penetrate. In the early years, if secondary limbs show narrow angles, you should remove them. Chestnut trees naturally will grow 18 to 48 inches or more in a year as long as the growing conditions permit. The trees will continue to grow until they reach their genetically determined height. Some types of chestnut trees can reach a height of up to 80 feet. Some types of chestnut trees reach their maximum height of 40 feet and then only grow out depending on available space. Chestnut trees, like many other fruiting trees, can be kept much lower than their natural height through annual pruning. Also, like other fruiting trees, chestnut trees will produce more nuts per tree or per acre if the trees are pruned in ways that maximize nut production.



## What and Where to Prune

After you get your tree into the shape you want, all you need to do is maintain it. This can be done pretty quickly with a winter pruning. Here is a list of things you should prune:



- **Suckers** are branches that grow off of the roots.
- **Watersprouts** are like suckers, but they grow straight up in the interior of the tree.
- **Weak V-Crotches** are places where the secondary branch is coming off of the primary branch at steep angle. This creates a weak bond and has the highest chance of breaking in the future. You want the crotches to look more like a U-shape.
- **Cross limbs** or limbs that cut across the tree and run into other branches should be removed.
- **Vertical growth** either up or down should be removed to encourage outward growth for better light penetration and picking.
- **Stubs and broken branches** should be removed to prevent disease and remove pest entry points.
- **Double leaders** or competing leaders should be removed. This causes competition and dwarfed fruit. Pick the strongest leader and remove the weak one.
- **Whorls** are competing branches at the same level of the primary leader. Similar to double leaders, this will cause competition.

To achieve both shape and good production, think of the root system of the new tree as a water pump. Any stems greater than ½ the size of the main stem should be considered “leaks” in the main water pipe. Any stem over ½ the size of the main stem is stealing water from the main stem you are trying to push. The shoot, which you are pushing, will become an extension of the main stem.

Pruning during or shortly before rain (2-3 days) can provide a path for disease to enter the tree. Water dripping into the open new cuts is the most common path of infection. Chestnut trees for the most part do not bleed. Without the bleeding, new cuts are left vulnerable until the exposed area is healed.



*Photo 1. A two-year-old chestnut tree, planted without any pruning. Secondary branches are taking over the central leader, as the tree was never trained. In its second year, a severe crotch has developed, making it difficult to tell which stem is the leader.*

Branches smaller than ½ the size of the main stem can stay, as they do not significantly reduce the amount of water to the top of the tree (Photo 2). Pruning and training of a young tree should begin the first year after transplanting. Training should take place gradually over several years and no more pruning should be done than is necessary to enhance the natural shape or structural strength of the tree (Photo 2). The objective in the first few years is to identify and correct problems with the main framework of the tree. Most trees are grown with one central leader (the top most vertical branch). When a young tree has competing leaders, the weaker ones should be removed. If they are essentially equal, either can be removed.



***Photo 2. A tree similar to that in Photo 1 but in this case, the two-year-old tree received early pruning. The following year the lateral branches under the main leader stem will be removed even though they have burs. These branches are too low to maintain a good shape to the tree, which needs to be trained “upward.”***



***Photo 3. The Photo shows the “before” and “after” pruning process. Notice the small growth tube which is acting as a tree (mouse) guard, not a growth tube.***

As mentioned above, pruning and training should start when trees are young. This will prevent many serious problems before they develop. Older, neglected trees are more difficult, dangerous, and expensive to prune

Older trees should be done when they are dormant; there is less weight on the limbs. At this time, it is easier to see the framework of the branches. Pruning of young trees should be done when problems can be observed. Also, it is important to mention that properly trained and pruned trees will yield high quality nuts much earlier and overall the health of the tree will be very significant and last longer. Always remember that the primary objective of training and pruning is to develop a strong tree framework that will support nut production. A well-pruned orchard will ensure good orchard management.



***Photo 4. Two orchards with trees approximately the same age, but managed differently. One orchard well pruned (better control), and the other (organic orchard) never pruned since planting.***

That is not to say that some growers don't prefer the "lollipop" shaped tree. Some suggest that this offers more leaves and therefore more food for the roots. Generally, the roots don't need much attention when the transplants are planted, other than a good source of water. Getting some height on those trees would be your best bet.



***Photo 5. A 15-year-old 'Colossal' chestnut tree that has never been pruned or trained. The older a tree becomes, the more difficult it will be to bring about a well-shaped, productive tree. The loss in yield after pruning will be severe for 1 to 3 years, but it will eventually produce expected levels of chestnuts again. The older a tree becomes before training the greater the chances of harming yields. The benefits of a well pruned tree can be seen in terms of care for the tree. It is difficult to weed and the weeds will compete for water and fertilizer. Harvesting will be difficult, by hand or by mechanical means. The low branches are simply always in the way.***

What then, should your young trees look like? That depends on the goals set for your orchard and trees. Do you want your orchard to be free of branches for at least 5 feet or more? Some growers consider that important so they won't bump their head when mowing or for future harvesting.

Keep in mind that after 3 to 5 years of training, you need to enhance your thinning skills that can be used to remove dead, broken, and weak branches. Then, selectively remove limbs from the perimeter of the canopy, especially those growing close together or beyond the desired canopy size. Also, remove branches with narrow angles of attachment. Branches should be taken back to their point of origin or to laterals that are at least one-third the diameter of the limb being removed. Trees vary in the amount of thinning they can tolerate without creating undesirable effects. An over thinned tree will respond by producing numerous sprouts and suckers. Sunscald can occur on trees with thin bark. Never remove more than 30 percent of the total foliage at one time.

In general, our suggestion would be to reduce those water robbing side branches; if not in the first year, then by the second or third. Get some height on the tree and support it by staking with a ten or twelve foot (2-3 feet in the ground) metal conduit post and allow the tree to begin its branching at 5 or 6 feet.