

## Pruning Apple Trees

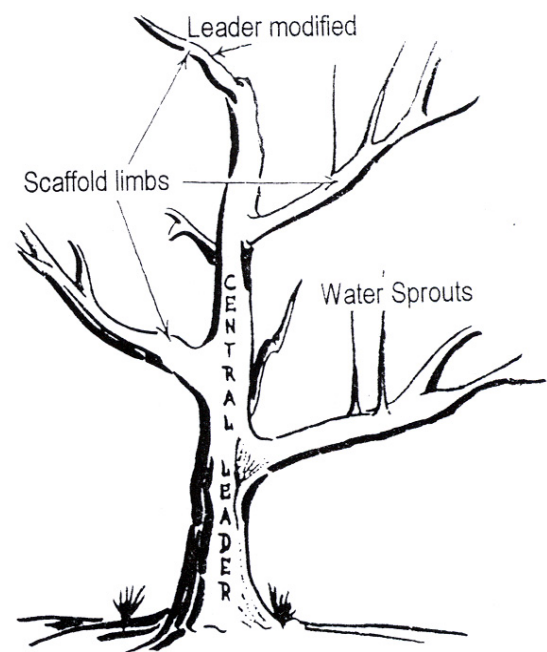
The “experts” generally agree to certain principles in the pruning of fruit trees. These principles include early training, selecting scaffold limbs with wide (60-90°) angle crotches and elimination of those with narrow crotches, thinning crowding branches and broken limbs, and heading the tree at a height desirable for economical spraying and harvesting.

**Training apple trees.** The training and selection of scaffold branches during the first few years of growth will influence the strength and life of your tree. There are several systems of training standard apple tree varieties, but the modified-leader system is best adapted to local conditions. This system is one that allows one leader or main limb to develop vertically for the first 5 to 8 years until strong, desirable scaffolds have developed laterally. Once the scaffolds have developed, the central leader is headed back to about 8 feet to a desirable, wide-angled limb.

This limb should be on the windward side of the tree, if possible, as a means of maintaining a good shape. The lowest scaffold branches should also be on the windward side. During the first few years, keep the leader larger in diameter than the scaffold limbs. This will help maintain strong crotches and discourage the scaffolds from becoming the leader.

Occasionally snip back the tip of the scaffold branches a foot or more to keep their height below the leader. Later, after you’ve harvested a crop or two, the limbs will bend enough to do away with this operation.

**Delayed heading.** You may not wish to follow standard procedures of pruning and training young apple trees for the first two or three years. Delayed heading, for instance, is a practice that is not universal but is successfully used by some orchardists. Delayed heading, the practice of pruning back the top of the tree to a strong bud which will become the central leader, starts when you plant the tree. This means cutting the whip back only a few inches, not to the usual desired height. The buds below the cut grow and lateral or scaffold limbs start to develop.



The mature tree will have a central leader modified at a desirable height (usually 8 feet), and scaffold limbs spaced up the leader 8 to 12 inches apart growing from various sides of the leader. Water sprouts and side branches are always found in vigorous orchards.

Scaffold branches near your cut develop sharp narrow-angled crotches. Limbs several inches lower, however, develop strong wide-angled crotches. After a month or two when the top shoots are 4- to 6-inches long, trim back the central leader to a shoot at the desired height. This point will be below the shoots with the narrow-angled crotches. The remaining top shoot will become the new leader for future growth.

You may find that bud stimulation or suppression will help develop good tree structure. Stimulation in this sense means selecting buds in a desirable location on the tree and cutting through the bark and cambium just above the bud. Do this in May or June during the first two years.

Suppression of undesirable shoots and buds may be accomplished by pinching back the growing point. You'll probably have to do this twice a year—once in June and again in July—over a two-year period to permit scaffold branch development.

**Scaffold limbs.** Select scaffolds that originate on different sides of the main leader, with the lowest limb on the windward side and at least 18 inches from the ground. Be careful that permanent scaffold limbs are no closer together than 10 to 12 inches at their base because each scaffold will develop side branches. Keep the side branches that have wide angles; thin out those that tend to crowd toward the trunk or other permanent scaffolds. Usually there are four permanent scaffold limbs originating from the main leader, but there may be as many as eight depending on the height of the leader.

**Strong, wide-angle crotches.** The limbs selected for scaffolds should form a wide angle (60-90°) with the main leader and be smaller in diameter. If you find only narrow-angled crotches on the young trees, remove them all so new limbs will develop from the leader. Delay in taking this step will cause you a great deal of trouble in shaping and training the tree in future years.

**Crowding branches.** Do not remove branches on young trees unless they interfere with desirable growth of the permanent scaffolds. More specifically, remove only those branches which are shading or rubbing the permanent branches, or are discouraging growth of new ones in desired locations. By leaving as much leaf surface as possible on the young tree, you will develop a larger tree in a shorter period of time.

Older trees already have more or less permanent shape and pruning of branches becomes a process of thinning. Trim to take out weak, slender unfruitful wood; to remove limbs that rub others; and to open up the tree for insect and disease control. Occasionally you may wish to leave a water sprout for bracing or renewal purposes. Otherwise, remove the water sprouts. They serve as a feeding area for insects and do not contribute to fruit production.

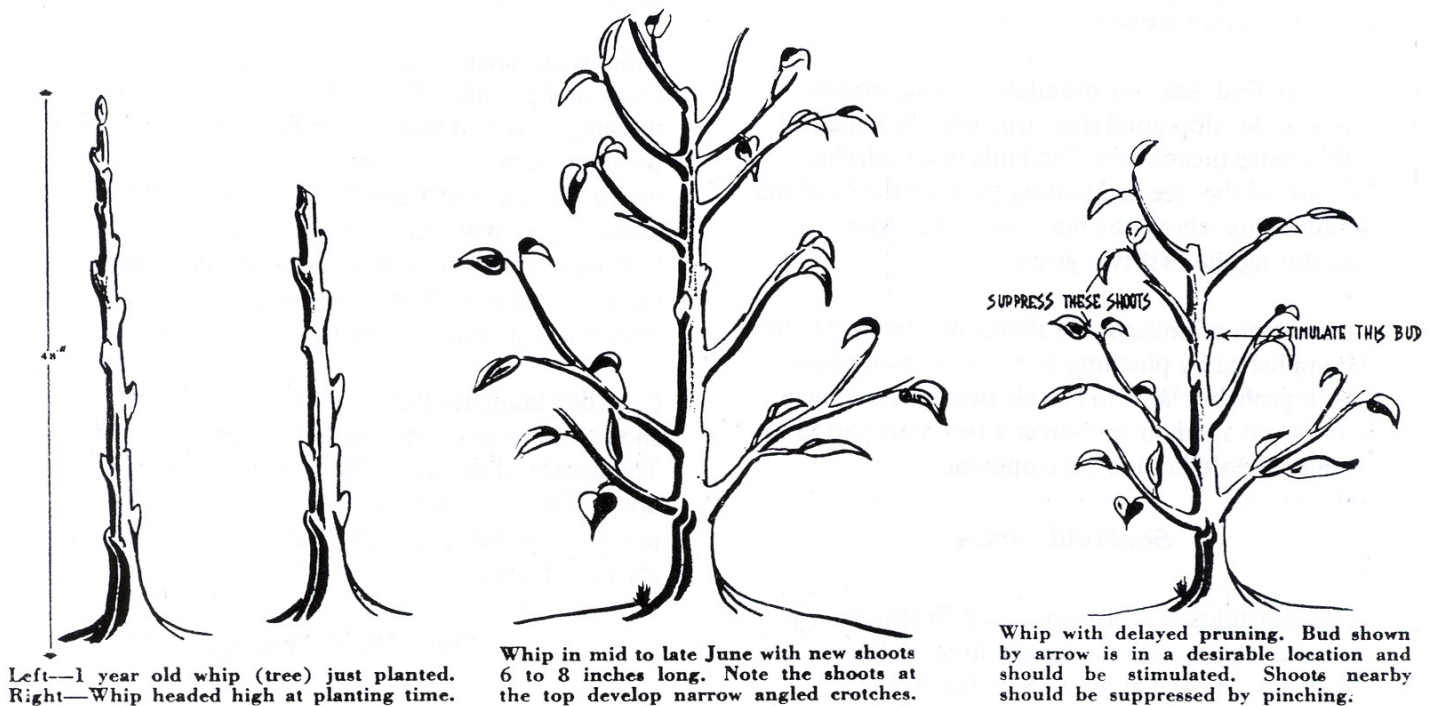
Crowded branches that tend to be growing down should be removed, not those that grow upward. The weight of the fruit will bring the branches down. Do not remove growing spurs. Food produced by leaves on spurs adds to the growth of the tree and fruit.

**Thin wood pruning.** Thin wood pruning on fruiting trees is economical and profitable, resulting in the production of more apples of good quality. Thin wood is found on outer reaches of the tree and toward the center. A ladder is usually necessary to do a good job on the outside.

Better growers will prune thin wood even though it takes longer than just the removal of crowded branches or bulk pruning. These trees often look over-pruned but close observation will show that few limbs are removed.

## When to Prune

If you have a small orchard, delay pruning until it's nearly spring. Allow for rain and bad weather, but plan to be finished pruning by May 1 or in time to begin spraying. In many larger orchards, the pruning begins soon after harvest and continues through to spring. Old trees are pruned first and young trees are left until March and April.



### Trees to Five Years

Other than training and shaping the young trees (as described under training), pruning should be limited to removal of limbs that are crowding and shading the permanent scaffolds, broken branches, or weak growth. Leave as much leaf area as you can to get fast growth and a large tree.

### Trees Six to Ten Years

Trees in this age group seem to grow very rapidly. You should have these trees already shaped with established scaffolds.

Because the limbs tend to grow *up* rather than *out*, bend the limbs down before pruning to visualize how the limb will be once it begins to bear fruit. If you do this, you will find the removal of thin wood, broken or damaged branches, water sprouts, and an occasional branch is all the pruning needed. ***Too much pruning will delay fruiting of the tree.***

## Trees Over Ten Years

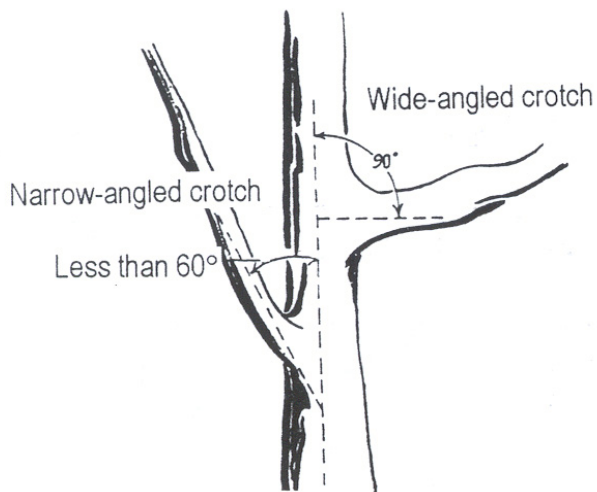
This is the age when trees are in prime fruiting. The limbs begin to bend from the weight of the fruit. Removal of thin wood, crowded branches, broken limbs, and water sprouts is a general practice. The big problem now is keeping the tree down to size without stimulating more upward growth.

Each large limb removed on top seems to encourage a dozen others which grow twice as high. Moderate work in the top of the tree each year is necessary to keep growth down. Occasionally, you will want to leave a water sprout in the top to branch out and provide shade to the upper branches to prevent sun scald. The second year the water sprout can be cut back two or three feet and the side branches will bear fruit and keep growth *down*, not *up*.

Never remove all the branches from the top of the tree leaving the center of the tree exposed.

Trees in this age group need to be pruned as much on the outside as on the inside. Removal of long, slender weak growth is important to maintain quality fruit. Leave strong branches and strong spurs, but remove crowded branches, thin wood, water sprouts, and broken limbs. Limbs which are touching the ground or will have fruit which is touching the ground should be removed. This often means you may have to remove one or more permanent scaffold limbs. The limbs above it will soon take its place.

Cutting back crowding trees is too common a practice. The need for this is usually the result of planting too close and failure to remove trees. If trees can be removed to improve spacing, do not hesitate to do so. A vigorous, well-managed orchard may have a yield drop for a couple of years, but the yield will be back up the third year following removal.



The limb on the left should be removed because it has a narrow angle (less than 60°) crotch. The limb on the right has a desirable, wide-angled crotch (60-90°) and should be left as a permanent scaffold limb.

**Equipment.** The amount and type of pruning needed determines the tools you will take to the orchard. You can usually handle two hand tools such as a limb lopper and hand saw. On young trees, you'll need hand shears, handsaw, and pocket knife. With power pruning equipment in use, the saw and shears are left with the tractor and used only when necessary. A light ladder is important on thin wood pruning on older trees.

Brush removal can be a problem. Brush rakes, similar to a buck rake but with shorter and stronger teeth, work well on thick brush but leave the spindle twigs. Orchardists are using large rotary mowers to chop up the brush and leave it for mulch.

You can remove brush fairly rapidly. Large limbs, 2 inches and larger, are trimmed out with an axe and removed for stove wood. Smaller wood is either removed or left to be chopped up with a rotary mower. Small brush, if it doesn't interfere with the cutter bar on the conventional mowers, need not be removed.

Most growers fork the brush in between the rows and push it out of the orchard with a modified brush rake. Or, you can pick it up by hand and put it on a large drag float or wagon. Another way is to use the large rotary mower and chop it up in the rows.

This works well if you use the rotary for mowing the grass later in the season. I have undoubtedly left out other methods that work equally well, but the point to remember is that brush *must* be taken care of.

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5/1994 Chemung

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