

# THE ART OF FRUIT TREE PRUNING

By: Dan Fernandez, Retired County Director  
Colorado State University Dolores County Extension

## Introduction

Pruning is a major cultural practice and a key component in proper tree growth and fruit production. Pruning timing and consistency are significant factors, with personal needs and constraints vital considerations. The following details the management and rules involved in this practice.

## Basics of pruning

- a. It's personal, and must be customized to your location
- b. You want to promote tree development to your management scheme
- c. Tree symmetry, support and strength are critical factors
- d. Reducing the effects of shading is essential
- e. The Goal is early and consistent fruit production

## When to Prune

- a. Pruning starts the first season the tree is planted - but only lightly.  
Pruning intensifies as the tree ages
- b. Pruning can begin in January, but March would be the best time for our area. Your start date really depends on how many trees there are to prune
- c. Pruning must be completed before bud swell or bloom
- d. Summer corrective pruning is advisable
- e. Do not prune after August 1<sup>st</sup>
- f. Do not prune early-to-mid winter as healing will not occur

## Pruning equipment

- a. Sterilize all equipment before and during use especially if diseases are present
- b. Hand saws, pruners, loppers and air powered equipment are acceptable
- c. Use chain saws only as last resort
- d. Keep all equipment sharp and clean
- e. Use only 3 point orchard ladders

## General rules for pruning

- a. The first season is the tree establishment year with minimal pruning the objective.  
Whatever pruning is performed, it should be with a specific training system in mind
- b. Remove broken or misplaced branches. Those branches that remain should be lightly headed to force additional branching
- c. Prune to limb positioning and symmetry. This will facilitate future pruning
- d. Follow your established pruning program consistently and every season
- e. Prune young trees (seasons 2 to 4) lightly concentrating on tree form
- f. Prune mature trees more heavily emphasizing form and fruit production potential

### **How much do I prune?**

- a. It's personal depending on your management scheme and desired pruning system
- b. First, step back and look at the tree. Then walk around the tree and start pruning slowly
- c. Remove dead, broken or diseased branches
- d. Remove congested or crossing branches and twigs
- e. Use heading cuts to promote side branching
- f. Remove all root suckers and water sprouts
- g. Heavy pruning can reduce fruit production, but enhance fruit size
- h. Old tree rejuvenation requires significant corrective pruning with subsequent reduction in production likely for 2 to 4 seasons

### **Pruning cuts**

- a. Pruning cuts should always be flush and smooth never flat where water could accumulate
- b. Avoid limb tearing and bark peeling
- c. Bark damage that is jagged should be smoothed out
- d. Do not cut into the collar of a limb
- e. **NEVER** use pruning paints or dressings

### **Limb Bending**

Bending nearly vertical or horizontal limbs to an aspect of 45 to 60 degrees usually stimulates fruit production earlier in the life of the tree. The thicker, more upright or prone a limb is, the more benefit they will receive from bending. Early production stimulated by bending helps to keep a tree small and manageable.

### **Tree shape & Size**

- a. For apples, pears and cherries\* a central leader or modified central leader system works well; think of the shape of a Christmas tree
- b. Peaches and cherries\* require an open center with 2 to 4 main scaffold limbs
- c. Tree size is determined by what you feel you can manage; a 10 to 12 foot tree is a relatively large tree
- d. For all trees, limb angles should be between 40 to 60 degrees to promote good fruit development, managed growth and limb strength

\*Note – Cherries can use both training systems

### **Open-center training**

To train trees to an open center, choose three or four shoots that might form a tree with good symmetry. Head them, removing a fourth to a third of their length, if they're long and unbranched. When you remove large limbs, first cut part way on the underside. Don't leave stubs but do not cut into the collar of the limb.

### **Central-leader training**

If a nursery tree has few or no branches at planting, head it just below the existing tree top. To train trees to a central leader, choose a vigorous shoot high on the tree after planting.

During spring or early summer, remove other shoots near the central leader. Due to their

upright aspect and vigor, these will compete with the central leader if not removed. Head this shoot by a third each dormant season, and tie down or remove competing shoots.

## **Tree Rehabilitation\***

**Trees which have not been pruned for 3 seasons or more are generally considered to be neglected or abandoned – these trees will require rehabilitation pruning. Rehabilitation is a process which cannot be rushed and requires at least 3 seasons to accomplish.**

**Season 1 – remove crossing, diseased or congested branches – remove no more than 30% of the total canopy.**

**Season 2 – Lower the height of the tree to a manageable level and thin season 1 growth  
Again, prune no more than 30% of the canopy**

**Season 3 – Final small limb removal and thinning new growth from seasons 1 & 2. Follow the 30% rule.**

**Special Note\* If you rush the process, significant suckering will develop and you will have to start over. You may also weaken the tree which can lead to insect and disease problems.**

## **APPLYING THE BASICS**

### **Apple Trees**

**Fully dwarf tree rootstocks EMLA 26 & 9, M, Bud 9, GA65 & 30.** You must support these trees in some way, or they will eventually bend or lean to the ground under the weight of their fruit. You could support the central trunk against the side of your house or a fence with adjustable eye-bolts or turnbuckles and wires.

If you use individual posts, make sure they extend at least 6 feet above the ground, and drive or sink them at least 2 feet into the ground. Wooden tree stakes should be 2 inches or more in diameter.

You can grow dwarf apple trees on a post-and-wire trellis in a hedge row. Posts may extend from 6 to 10 feet above the ground. Treated posts are best, but sound, untreated 4X4 cedar posts may be satisfactory. Use galvanized wire, 12 gauge or heavier. The lowest wire, should be about 4 to 5 feet above the ground, with higher wires placed to 10 feet.

Anchor the end posts against another post driven several feet into undisturbed soil at an opposing angle. Tie the main trunk to these wires, using a loop big enough to allow the trunk to grow without being girdled.

Train fully-dwarf apple trees to a central leader. If you train them to a central leader and support them from a post or trellis, they will make highly productive 6 to 10 foot trees. If you don't trim them in this manner, the weight of the fruit will bend them down so that they make bush-like trees only 4 or 5 feet tall.

In the spring following planting when shoots are 3 to 4 inches long, select the uppermost vigorous shoot and remove other shoots near it. Return in summer and remove any shoots that, because of their upright aspect and vigor, will compete with the lead shoot.

Head this shoot by a third in the dormant season, and tie down or remove competing shoots. Repeat the process in the following two seasons so that no side branches become vigorous enough to compete with the central leader.

Keep three to five branches 24 to 30 inches above ground to form a basic set of permanent branches. If they're upright, tie, spread or weigh them down to a 45 to 60 degree aspect. Using strings attached to a ground stake is a highly effective method for limb bending and positioning.

Also, varying lengths of wooden or metal branch separators are excellent for this process.

### **Apple Trees**

**Semi-dwarf Trees EMLA 26, EMLA 7 EMLA 111.** You can train these trees to a central leader or develop them with three or four lead branches. Central leader is best for weak-growing varieties on poor soil. Train vigorous varieties with multiple leaders (when trained to central leaders, they may become too tall). In a windy site, use a sturdy stake for support in the first few years.

Head nursery trees the same as for central leaders, but develop three or four shoots instead of one. When they're 4 to 6 inches long, spread these shoots using wooden or metal branch spreaders or light string.

In the following years, spread or tie out the lead limbs to an overall aspect about 45 to 60 degrees from vertical. As the tree begins to bear fruit, properly formed limb angles should reduce or eliminate the need for propping up limbs to prevent breakage.

### **Apple Trees**

**Spur-type Trees.** These form many small spurs on young growth rather than the usual long shoots and leaf buds. This is how they got their name.

Each spur bears a flower cluster. The leaves are close together, the tree branches are less frequent, and the tree grows slowly. Because these trees are smaller than the standard strains of the same variety, and fruit at a young age, they make ideal home-orchard trees. If you grow them on vigorous rootstocks, Spur-type trees may not require artificial support until they are in production.

Spur-type trees are available on both vigorous and dwarfing rootstocks. Because they branch sparsely, leave more branches in a spur-type than in a tree of standard growth habit. To train them to a central leader, space the lower set of limbs several inches apart vertically on the leader, and reduce their number to four or five.

### **Apple Trees**

**Standard trees (full size on seedling roots)** Train them on non-dwarfing roots to the modified central leader system. Leave the central leader in place until fruiting begins, then gradually remove it.

It's desirable to have only four main scaffold limbs, equally spaced around the trunk and vertically spaced several inches apart. Develop the main scaffold limbs to an overall aspect 45 to 60 degrees to the horizon. Make sure that all secondary branches also have an upward aspect.

The branches of a mature non-dwarf apple tree may spread over an area 40 feet in diameter and reach a height of 30 or 40 feet. Regular pruning, and tying down of upright limbs in the top, is required to maintain a height of 12 to 15 feet. Prune to make the lowest limbs the most vigorous and productive in the tree.

Shorten, thin out and bend down the upper limbs to accomplish this. By removing risers that go straight up and hangers that grow straight down, you form the permanent limbs. Also, open a vertical space of about 3 feet above, so that light can penetrate.

If a tree has not been pruned for several years, it will have a dense thicket of upright shoots in the top and many weak, pendulant spur systems further down. Prune it back into shape gradually over several years, rather than trying to do the whole job in 1 year.

After you identify the main scaffold branches, prune out any excess large branches. Climb as high on your ladder in the tree's center as you intend to pick and cut the main scaffold

limbs down to a height that you can safely reach.

Remove limbs that overlap or hang down into other limbs. Thin out the upright shoots, leaving some of the smaller ones. Cut back weak pendulant limbs. Gradually invigorate the spur systems by cutting back some and removing others. For better sunlight distribution, the center of the tree should be fairly free of limbs.

### **Pear Trees**

Pears have a tendency to grow upright, and it generally requires significant limb bending, spacers and yearly pruning to maintain proper tree form. In fact, you will have to use a significant amount of limb spreading and pruning techniques on a pear tree for many years.

At planting, pear trees should have minimal pruning. Selection of potential scaffold limbs is the main emphasis the first season. In the second season, head the trees at about 24 inches. If the top is branched, retain some branches as leaders. Train pear trees to three or four leaders. Do little or no pruning except to head and spread the leaders annually until the tree starts to bear fruit.

Don't head side branches. Heading would maintain their upright position. Spread, tie or weight all vigorous shoots except the lead shoots.

Regularly reduce tree height to one you can reach from your ladder. Shorten or remove upper limbs so they don't shade the lower limbs. Thin out the branches of the mature trees and do the heaviest pruning in the tops.

Remove the long shoots in the center and top, but leave some short shoots and most spurs. Remove horizontal branches in the tree top so that they won't produce suckers.

### **Sweet Cherry and Peach Trees**

At planting, sweet cherry and peach trees should have minimal pruning. Selection of potential scaffold limbs is the main emphasis the first season. In the second season, head the trees (decapitate) at a height desired for scaffold branches. Cutting a foot or two above ground level will produce a shorter tree. Train sweet cherry and peach trees to the open-center system with 2 to 6 scaffold branches. The vertical limbs of young sweet cherry trees often will grow 6 to 8 feet without branching.

If a young tree is growing very rapidly, cut off a foot or more of new growth if 3 feet of growth has developed in the summer. This practice will cause or force additional branching.

To promote branching on trees not pruned in summer, head every shoot to about 2 feet in length in the early spring. After 5 to 6 years, stop heading and thin out crowded branches.