



# Tree/Shrub Pruning

## Florida Conservation Practice Standard 660 Guidance

Natural Resources Conservation Service (NRCS)

February 2006



Photo: E.F. Gilman, Prof., Environ. Hort. Dep., IFAS, Univ. Florida

### PURPOSE

To provide additional information for tree and shrub pruning as outlined in Florida NRCS Conservation Practice Standard Tree/Shrub Pruning, Code 660.

### Ornamental Species and Pruning for Recreation, Landscaping, and Aesthetics<sup>1</sup>

#### Maintenance Pruning in Urban Situations

Pruning can help treat and avoid some problems in urban settings. But it is important to establish the objectives for pruning before starting. Possible objectives include:

- Reduce risk of limb or trunk failure
- Provide clearance
- Reduce shade and wind resistance
- Maintain health and vigor

<sup>1</sup> All photos and diagrams in this section from E.F. Gilman, Prof., Environ. Hort. Dep., IFAS, Univ. Florida  
<http://hort.ifas.ufl.edu/woody/index.htm>

- Influence flower or fruit production
- Improve visibility
- Improve aesthetics

Depending upon if, where, when, how, and why pruning is applied it can be beneficial or harmful. When improperly performed, pruning can impair a tree's health, stability and appearance. Proper pruning reduces the risk of branch and stem breakage, better clearance for vehicles and pedestrians, improved health and appearance, enhanced view, and increased flowering.



In urban situations, lack of pruning often results in large low growing limbs, weak codominant stems,

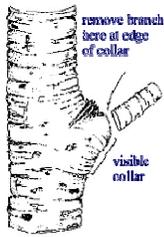
defects such as included bark, and an accumulation of dead branches. Formation of codominant stems and defects such as included bark can lead to increased risk of breakage.

These problems are seldom seen in forest situations due to competition between neighboring trees for light. One of the main goals of landscape pruning is to develop canopy structure similar to what is found in the forest. To accomplish this, competing leaders are suppressed by reduction cuts which shorten the stem back to a branch at least one-third the diameter of the cut stem.

Trees less than 20 inches in trunk diameter should be pruned every few years to encourage growth on the selected leader, to promote longevity, decrease maintenance

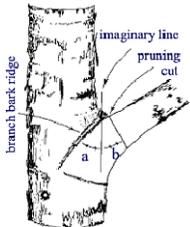
costs, and minimize the likelihood of personal injury or property losses.

**visible collar**



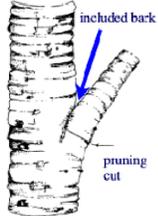
Pruning cuts should be made at edge of branch collar. The collar contains the **branch protection zone** that retards the spread of decay into the trunk. Do not apply paint, wound dressing, or chemical formulation to the cut. They will not help prevent decay; only appropriate pruning helps prevent decay. On young trees (<15 yr old), branches that are smaller than about half the trunk diameter generally can form a **branch protection zone** in the base of the branch where it meets the trunk.

**no visible collar**



When trees are more than 15 yr old, larger branches tend to lose their ability to restrict decay. This may be because they have heartwood or wood that is unable to react to injury. If you suspect that heartwood is present, consider shortening the branch instead of removing it.

**no collar and included bark**



Additional information regarding pruning established trees can be found at: <http://hort.ifas.ufl.edu/woody/index.htm>

**Pruning Practices for Florida Grown Nursery Stock**

Trees with small diameter branches, along a dominant trunk, with a pleasing canopy form, and on a quality root system is the goal of any quality shade tree production program.



Proper pruning of both trunk and roots is essential in the production of high quality shade trees.

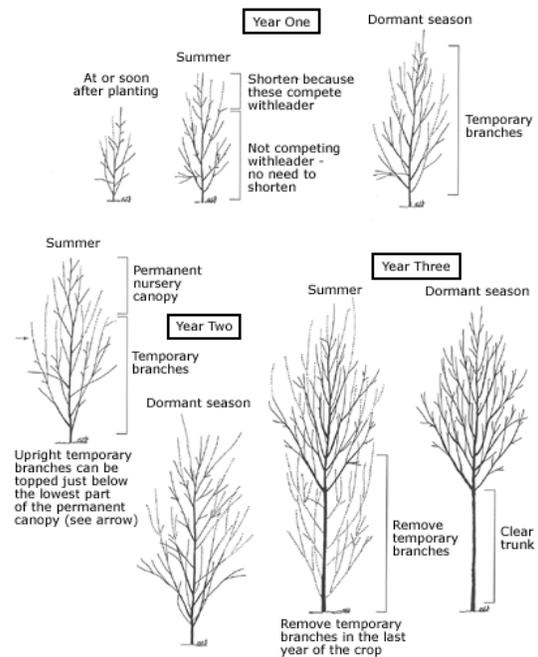
Quality trees have small branches spaced along a dominant leader. This type of tree is produced over several years of careful nursery management.

The first year, the main objective is to develop a sturdy trunk and root system. To achieve this upright branches that compete with the leader need to be cut back, the length of low branches need to be reduced, and foliage disease and insects controlled.

In the second year, lower temporary branches are kept short and the canopy is trained into the appropriate form (e.g., cone, teardrop, or oval) for the tree species. Any branches that are crowding or crossing over are shortened or removed back to trunk.

The goal of the third and fourth year pruning is to build on the structure developed in the second year.

Nursery production protocol for upright trees (3-year crop)



The goal of root pruning is to develop dense root system within the root ball area. Root pruning prior to transplanting has been shown to enhance survival of nursery stock. Root pruning usually done with a spade two quadrants at



one time (i.e., north and south, or east and west) by cutting the root system about 6 inches inside the diameter of the root ball when it will be dug. After the new roots have had time to grow in the pruned quadrants, the remaining two quadrants are root pruned.

Additional information regarding pruning of woody nursery stock can be found at: <http://hort.ifas.ufl.edu/woody/index.htm>

### **Christmas Trees**

Shearing or pruning is critical to the production of the desired size (5-7 ft) and form within the expected 3-yr growing cycle of Christmas trees produced for local markets in Florida. In the first and second year, shearing is directed to producing a densely branched tree that has the traditional "cone" shape.

This type of shape is produced by removing the terminal bud back to 50% of the original height with a 45-degree angle cut. This reduces overall height and allows more proportional growth of the lateral branches.



In second and third years, shearing should be done in the spring after bud break but before new shoots are over 4- to 6-inches long. A mid- to late summer shearing, along with a third shearing in the early fall, will be necessary to force as much energy away from height growth and back into conical form development. These shearings are also used to remove signs of pest damage such as dead branch tips from pine tip moths or flagging branches due to the pitch canker fungus, especially among Virginia pines.

More information on Christmas tree production can be found at: <http://smallfarms.ifas.ufl.edu/Forestry/>

### **Commercial Forestry**

The primary objective of commercial pruning is to increase the amount of clear wood product produced. Removing limbs in the lower 16 feet of the bole early in the life of the tree (>20

years left in rotation) produces more wood free of knots which brings a higher market price.

Under commercial conditions, pruning is a speculative gamble based on estimating future value of saw timber offsetting the capital investment of pruning. Because timber growth will not be rapid enough to offset the capital investment, pruning should not be considered on land with less than Site Index 75 (Base Age 50). (Site index is a measure of the relative productivity or quality of a given timber site based on estimated tree height at a given age. In this case, the base age is 50 years. For more information on these estimates, contact the Florida Dep. Agric. & Consumer Services - Division of Forestry <http://www.fl-dof.com/> )

Loblolly and slash pines targeted for quality grade sawlogs or plywood bolts are best suited for commercial pruning. Only dominant or co-dominant trees should be selected for pruning, and the trees should be relatively straight and contain no forks, excessive sweep, or crook.

There are three basic pruning techniques for commercial timber that use the same physical pruning techniques, differing only in timing of pruning(s), timing of subsequent thinning, and how far up the bole to prune. For sawtimber, either a one-step or two-step pruning method is used to increase the volume of clear wood on the butt log; while a third technique is used for plywood bolts.

In the one-step pruning, depending on site index, a stand is evaluated at 15 to 18 years of age and selected trees are pruned when they reach a height where 17 feet of bole can be pruned and still leave a 40 percent live crown ratio (i.e., 40% of the tree will still contain live limbs). The stand is immediately thinned to between an 80 to 90 square feet basal area. A second thinning after 10 to 15 years should then remove all except the pruned crop trees.

In the two-step pruning method, the stand is evaluated at 7 to 10 years of age and the first 6 to 8 feet of the bole are pruned if 40 percent live crown ratio can be left. The first thinning is then performed as soon as non-pruned trees are marketable. The second pruning should be made when the trees reach the desired 17 foot height and 40 percent live crown ratio. The final thinning should immediately follow

the second pruning to reduce the stand to the desired basal area requirement.

For plywood bolt production, a pre-commercial thinning is made leaving approximately 150-250 well-spaced trees per acre. The remaining trees are pruned for approximately 8 to 12 feet. Tree selection standards and live crown ratios are basically the same as for the other two techniques.

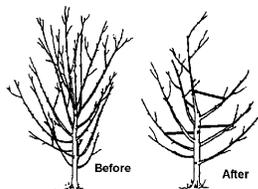
For more information on commercial forestry pruning see:  
[http://www.forestry.state.al.us/Forest\\_Management/FMS/Timber/TSI/Pruning%20Pines.pdf](http://www.forestry.state.al.us/Forest_Management/FMS/Timber/TSI/Pruning%20Pines.pdf)

**Fruit Bearing Trees and Shrubs**

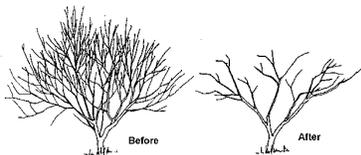
Although pruning is a general term for selective removal of plant parts to obtain a desired growth or developmental response, for fruit trees, pruning usually refers to mature, bearing trees. It is done primarily to increase production of high quality fruit and limit tree height and spread.

Almost all pruning of deciduous fruit trees is done in the dormant season (late winter or very early spring, before bloom). It is important to delay pruning until after extreme cold passes since pruning may reduce cold hardiness. With young trees, some summer pruning or training may be necessary but should be limited to snipping, pinching, or rubbing away young, succulent growth. Extensive pruning during the growing season should be limited to that necessary to remove diseased or damaged wood.

The modified central leader system is used for apple trees in Florida. Trees trained this way usually have five to seven well-spaced scaffold limbs 6 to 10 inches apart on the central leader radiating from the tree axis in different directions.



Stone fruit (e.g., peaches, nectarines, plums, and apricots) are trained in the open-center, or vase-shaped, training



system. Open-center trees usually contain from three to five major scaffold limbs with no central leader.

More information on pruning deciduous fruit trees can be found at <http://edis.ifas.ufl.edu/MG345>.

In contrast to apples and peaches, citrus is not a deciduous plant and pruning practices differ greatly. Citrus trees require little training since they are headed in the nursery with 3 to 5 scaffold limbs already formed. During early tree development of commercial and backyard citrus, it is important to remove suckers from the base of the tree. Suckers usually are produced from the rootstock and will not produce desirable fruit, and without removal, they will interfere with tree development. In commercial situations, trunk wraps prevent most sucker problems, while in backyard situations they are easily removed by hand.

In commercial citrus production, mechanical topping, hedging, and skirting (removal of lower limbs) operations facilitate hand and mechanical harvest, allow easier movement of equipment in the grove, improve fruit size, etc. These operations usually are done after harvest but before bloom in late winter or early spring when threat of freezing is past. Little pruning is necessary for mature backyard citrus trees, except when substantial injury occurs following disease or freeze damage. Because pruning often will reduce fruit production, pruning should be reserved to prevent trees from crowding other plants, buildings, or areas reserved for open space.



When pruning citrus, remove the minimal amount of canopy needed to achieve your goal, since reduction of cropping will be greater with more severe canopy removal. If the hedging/topping operation does not exceed 1 foot into the canopy, cutting the entire orchard at one time is usually preferred. If canopy cuts deeper than 1 foot are needed, then only alternate middles should be cut. Trees will sometimes produce very vigorous vertical shoots known as water sprouts or suckers. These shoots are slow to bear fruit

and interfere with more productive limbs, so their removal is desirable.

More information on pruning citrus can be found at: <http://aggie-horticulture.tamu.edu/citrus/pruning/L2308.htm> and <http://edis.ifas.ufl.edu/HS132>

For blueberries, there are two basic types of dormant season pruning cuts:

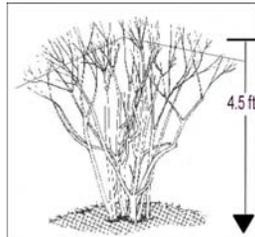
- heading-back cuts which consist of cutting the terminal of a shoot back to a lateral bud, usually on one-year-old wood; and
- thinning out cuts which consists of complete removal of a shoot or cane at or near its origin.

Heading-back limits plant height, stimulates lateral vegetative bud growth below the cut which produces new fruiting wood, and adjusts fruit load. This type of pruning may be done mechanically, or by hand.

Thinning out cuts are done by hand and remove older, less productive canes and rejuvenate bushes through increased production of new canes. They also allow for better air circulation, light, and spray penetration.

Unlike with deciduous fruit trees, topping of the plants is usually done with mechanical hedgers in the summer after

harvest to stimulate vegetative growth of southern highbush blueberries.



More information on pruning blueberries can be found at: <http://edis.ifas.ufl.edu/HS223>.

## REFERENCES

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