

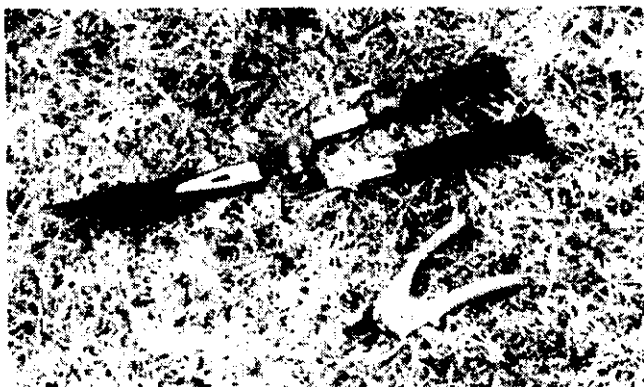


PRUNING AND SHEARING

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Once you have decided to start a Christmas tree plantation in Kentucky and have planted the seedlings, the trees will require some form of annual (or more frequent) maintenance from the year of planting until they are harvested. Under typical climatic conditions, the time for pruning and shearing Christmas trees here is late May to late June. At the time of planting, you should prune out double leaders, lateral branches, and any damaged parts of the seedlings; you should also remove any roots that are much larger than the planting hole. (See Figure 1 for an illustration of the Christmas tree.)

During the first few growing seasons, monitoring the plantation every week or two for pest or cultural problems is well worth the time. While walking through the plantation, carry a pair of sharp hand pruners (either anvil or scissor type, although some argue that the scissor-type makes cleaner cuts) and look for seedlings that have double leaders, double stems, unbalanced growth on one side, off-color foliage, etc. These



Hedge clippers (top) and anvil type pruners (bottom)

problems can be corrected easily at this stage. If corrective pruning is done in late June or early July on most of the pines, you should have no further growth problems that year. Virginia pine usually needs an additional pruning late in the summer. This type of

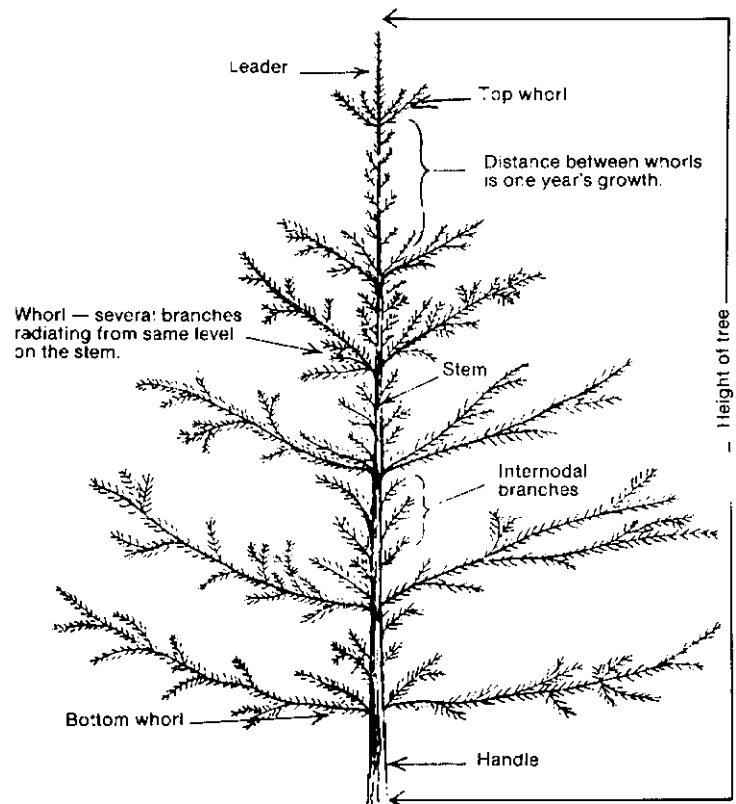


Figure 1.--Christmas Tree Terminology

corrective pruning should be the only cutting needed on the trees in the initial years. The earlier you begin such treatment, the better the form of the trees.

Starting with the third year, and then every year until it is sold, the tree must be sheared into a Christmas tree's classic conical shape. The following are the major objectives in producing a quality Christmas tree:

- a single, main stem
- a balanced, symmetrical form with no gaping holes
- full, compact (dense) foliage
- adequate taper — width of base of tree should be

about 2/3 height (6 ft tree should be approximately 4 ft wide at base) (Figure 1).

How tightly a tree is sheared is largely a matter of personal taste and market demand. Many established growers continue to work on the leader and the top whorl of branches with a hand pruning tool regardless of whether or not they shear with machinery. The sides of the trees can be sheared with two-handled hedge clippers, a shearing knife (similar to a machete), or a steadily widening variety of gasoline-, compressed air-, or electric-powered machines.

Timing

Pines need to be sheared in the summertime, but firs and spruces have different growth patterns and can be sheared at times other than the growing season. Normally, in Kentucky the shearing season is late May to the end of June. **However**, shearing will be most successful if done when the trees reach a particular growth stage, so go by the trees, not the calendar.

Every year, when the new pine buds break, the shoots

set, producing too many branches the following year, which then need to be thinned out. **If sheared too late**, shearing equipment will make ragged cuts on the branch tips and will knock a lot of needles off the ends of the branches when you cut. These needles will not regrow, and bud set will be poor or absent from woody tissue.



Shearing with a knife



Shearing with hedge clippers

elongate and form "candles." As time passes, and new needles emerge along the shoots, the shoot completes elongation and sets new buds for the next growing season at the branch tip. Then the new branches harden off, changing from somewhat soft, succulent tissue to harder, woody tissue.

The time to shear is when elongation is complete, but before the branches fully harden off.

When elongation of shoots is complete, all needles are the same length and the spacing between clusters of needles is even. If needles at the tips of the branches are shorter and/or closer together than the others, the trees aren't ready yet.

If sheared too early, the new buds will open again and grow a little, forming tufts of needles on the ends of the branches. Early bearing also causes excessive bud



Yule trimmer in use

Tips for Correct Shearing

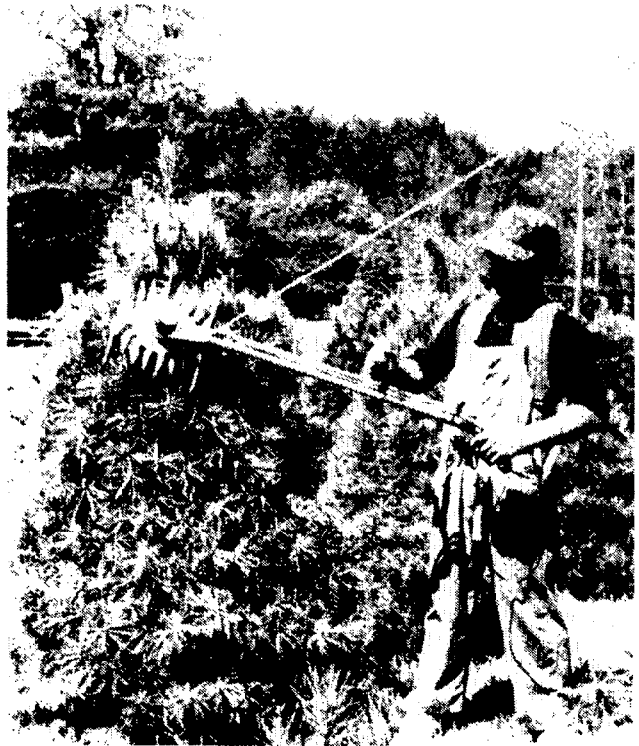
If there is an area along the branch with no needles, avoid cutting there, because no buds will be set where needles are absent. Make sure you cut only in the current year's growth where the active tissue occurs.

As you prepare to clip the leader and top whorl (ring) of branches, decide what spacing you want between whorls. The longer the interval between branches (e.g., one foot), the more open a tree you will have and, vice versa, shorter intervals make denser trees. Depending on the preferred size, cut a stick exactly that length and place it at the base of the leader. Then clip the leader at the predetermined length, **cutting at a 45° angle**. This helps to ensure that only one bud will become the new leader out of the new set of buds formed.

There are other, simpler, methods of gauging leader height such as a hand span or the length of a hand pruner. With experience, you will learn that it is difficult to have hard and fast measurement rules for trees whose growth is variable. Work out a system that is appropriate for each plantation. If there are double leaders from the previous year's growth, clip out the undesirable one at its base. The top whorl of branches should also be cut at a 45° angle, but that angle is less critical on the side branches than on the leader. Their length should be approximately 2/3 the length of the leader. Five to seven branches (but preferably an odd number) is usually adequate for the top whorl, so if there are many more



Splinting top of tree to support new leader.



Zipper in use

than that, thin them out, again cutting them at their bases.

When shearing firs, spruces and Douglas-fir, make the same decisions about length of leader and side branches of the top whorl, but always make the cuts about 1/2 inch above a bud. Pruning cuts on these species should be straight and parallel to the ground. NOT at an angle. These species set buds along the length of the branches, not at the tips. Firs, spruces and Douglas-fir probably should not be pruned or sheared during the growing season. You can shape them in fall, winter or in early spring before bud break.

If, for some reason, there is no leader on the tree, select a promising candidate for a new leader and tie it upright with cotton string or tape that later can be easily removed. If the tree has nothing to which to tie the new leader, such as the broken or dead piece of the original leader, make a splint with a stick or dowel long enough to brace the new branch and to set firmly against the top of the tree trunk. An alternative is to tie two opposite branches together and later cut one out. Check trees later in the growing season to see if the new leader "took." **Remove the tie when the new leader is established.**

After the leader and top whorl have been shaped, eyeball the angle of the line that these two points form and continue shearing the sides of the trees, maintaining that angle to the bottom. Using a knife or mechanical device usually allows long, smooth up and down strokes to do side shaping. It is initially more awkward to keep that smooth line using hedgeclippers or hand pruners.

Shearing small trees can also be difficult, but sometimes standing over the tree cutting downward where the whole tree is visible makes it easier. If using hedge clippers on little trees, turn the joint of the clippers outward, so the blades slant slightly inward. This also helps to make a smoother cut. When shearing larger trees with a knife, be sure to swing the downward stroke from the shoulder and not from the elbow or wrist. Grip the knife loosely (some growers use a thong on the handle to keep the knife attached at the wrist and allow flexibility at the wrist to aid in cutting). Use a leg guard and protective gloves when working with a razor-sharp shearing knife.

Some growers have done basal pruning, which has several advantages. When the trees are harvested, they will need a "handle" to put into a tree stand, and by doing basal pruning, that handle is already prepared. Second, there is evidence that some insects and diseases, and certainly small rodents, live in

grasses that grow under the trees. If the lowest branches touch the ground, it is more difficult to control the grass under the trees, and therefore, these pests have easier access to the trees. Another benefit is that, as your plantation grows older and gets closer to harvestable size, the branches you prune from the base could be used for wreath-making, or just bundled and sold as decorating greens.

Detailed information about Christmas tree shearing equipment is available from you county Extension agent or from the Kentucky Christmas Tree Growers' Association (See FOR-34). Also a videotape, Pruning and Shearing Christmas Trees, is available for loan or purchase from the Department of Agricultural Communications Services or the Department of Forestry at the University of Kentucky. This videotape illustrates correct pruning of both small trees and trees of harvestable size.

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