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ONEIDA COUNTY**

HOME GROWN FACTS

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Shearing for High Quality Christmas Trees

Pre-Shearing Care: The grower's main concern during the first, second or third year after planting seedlings or transplants is to keep the trees alive, healthy and growing well. Attention should be given to:

- Replacing dead, dying or unhealthy looking plants with healthy stock within one or two years after the initial planting.
- Removing all multiple leaders except one by cutting off extra leaders at their base and flush with the main stem. The single leader retained should be selected on the basis of size, vigor and straightness. The number of internodal buds is important on spruces and firs.
- Shearing off the ends of any lateral branches growing to an abnormal length and extending outside the desired cone shape of the tree.
- If a terminal bud dies or a leader is broken off at its base, a new leader will likely develop from a turned up lateral branch of the top whorl. However, multiple leaders often develop in this case. To replace lost or seriously damaged leaders throughout the production period, a lateral branch can be trained to replace a lost leader. In July or early August, select a strong, closely spaced lateral branch in the top whorl for the new leader. If possible, the branch selected should be backed up by a strong branch growing directly below it, especially on Fraser fir. If there is enough of the stub of the damaged leader remaining on the tree, the new leader can be tied to the older leader stub with a soft material such as plastic flagging. If the old leader broke off at its base, it may be necessary to tie the new leader to a wooden splint that has been tied to the stem at the upper portion of the previous year's growth. Some growers tie the lateral branch that is to become the new leader to a lateral branch on the opposite side of the broken base. On a true fir such as Fraser fir this may leave an open space in the whorl of limbs at the points where the two lateral branches were pulled together.

The Pines

Pines normally produce whorls of lateral branches with no internodal buds along the stem. Unless there is genetic variability in the species or unusual weather conditions occur, most pines grown for Christmas trees commence growth in the spring, experience a single shoot growth period and then set buds.

Normal bud set on an unsheared leader of Scotch pine consists of a terminal bud, upper lateral buds, lower lateral buds and interfascicular buds. Interfascicular buds are sometimes called dormant buds and are very small, tiny buds that occur between and at the base of the needles. Their growth and development are normally controlled and suppressed by the terminal and lateral buds on an unsheared leader. Development of a sufficient number of healthy, vigorous interfascicular buds is the key to quality pine Christmas trees. When the terminal cluster is sheared off, the restraining effect on the development of the dormant buds is destroyed, and a number of the dormant buds located just below the cut will develop into shoot buds (Figure 1).

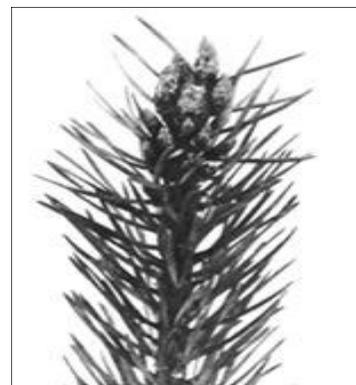


Figure 1: New buds forming at base of needle bundles on a sheared Scotch pine terminal.

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The number and vigor of buds that form depends on the time of year when shearing is done. The best possible time to shear the pines is just after height growth has been completed and before stem or branch tissue has hardened off and turned woody. At this time, the numbers of large, vigorous buds that develop below the shearing cut will be from two to four times greater than the numbers on uncut stems. Shoot growth from these buds the following year will be almost as much as that on uncut stems. Additional limbs that arise from dormant buds add greatly to foliage density.

In New York, the most appropriate time to shear the pines is from May to June. Time of shearing varies with location in the state and other factors affecting tree growth. The shearing season usually begins 10 to 14 days earlier in the southern part of the state than in the northern half of the state.

There are two key points to remember:

- 1) pines are sheared during the growing season and
- 2) best results are obtained when trees are sheared just after completion of height growth. As trees are sheared progressively later in the summer, dormant buds have less and less time to mature and develop into strong, vigorous buds. Fewer buds develop and growth the following season is reduced. A tree sheared in late summer produces only a few weak buds. Growth and foliage density may even be less than that on an unpruned tree (see Figures 2, 3 and 4). Poor results from late shearing vary somewhat for the different pines. Scotch pine is least affected, while white pine is most drastically affected. It is important that growers shear white pine as early as possible. Limbs of white pine sheared in mid- to late summer will often die back (see Figure 5).



Figure 2: Limb development and shoot growth the year after on Scotch pine terminal sheared in mid-June.



Figure 3: Limb development and shoot growth the year after shearing on Scotch pine terminal sheared in mid July.



Figure 4: Limb development and shoot growth the year after shearing on Scotch pine terminal sheared in mid August.



Figure 5: Die-back of white pine terminal sheared during the winter.

In shearing the pines, the leader or terminal shoot should be cut to the maximum length possible while still maintaining proper density and taper of the trees. Although leaders are usually cut to 12 inches, growth is variable. The usual range in sheared leaders is 10 to 14 inches. Shearing to shorter lengths can add one or more years to the length of time needed to grow a marketable tree.



Fig. 6: Sloping cut on terminal of Scotch pine. One needle bundle is left near the apex of the stem. This favors development of a single new terminal after shearing.

The cut on the leader should be made at a 45 degree angle to the stem's upright or vertical axis. The simple procedure of cutting the leader at this angle puts one needle bundle (fascicle) at a higher position on the stem and minimizes the problem of multiple leaders (Figure 6).

If the cut is made straight across the stem at a 90 degree angle, two or more needle bundles may be equally close to the upper edge of the cut stem, and multiple leaders often develop (Figure 7).



Figure 7: Flat cut on Scotch pine terminal. Several needle bundles are left at the same height near the cut edge, favoring the development of multiple leaders after shearing.

When shearing with hedge clippers, blades should be kept parallel to the plane of the tree rather than perpendicular to the plane.

Basically, shearing pines is a matter of timing. Trees should be sheared at or soon after completion of height growth, if possible. Through shearing, the grower limits height and width to create the desired appearance.

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