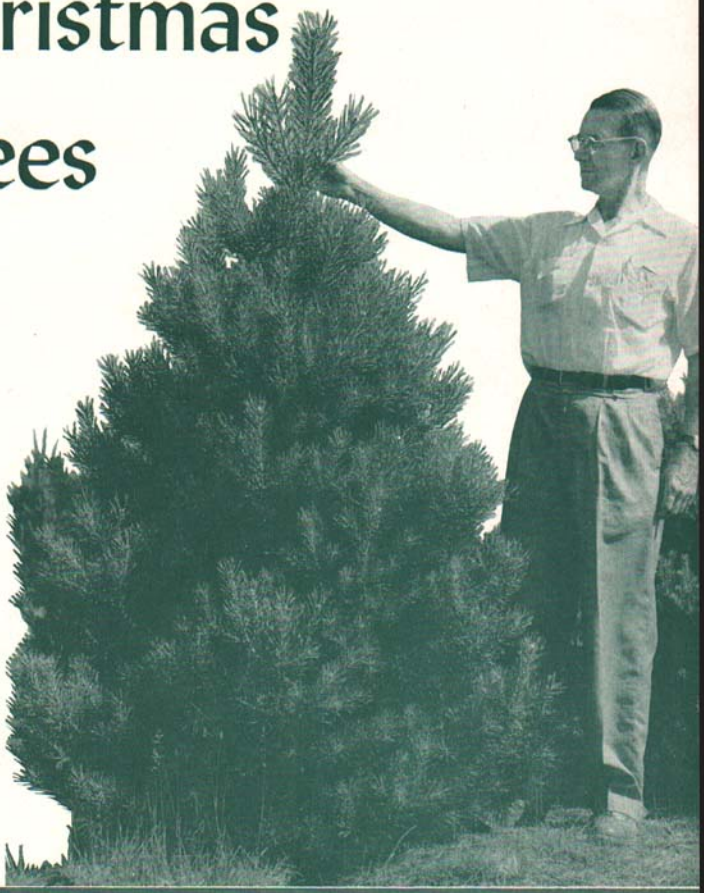
Shearing & Shaping Christmas Trees



Extension
Bulletin 359
Second Revision
March 1962

MICHIGAN STATE UNIVERSITY
Cooperative Extension Service · East Lansing

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Shearing and Shaping Christmas Trees

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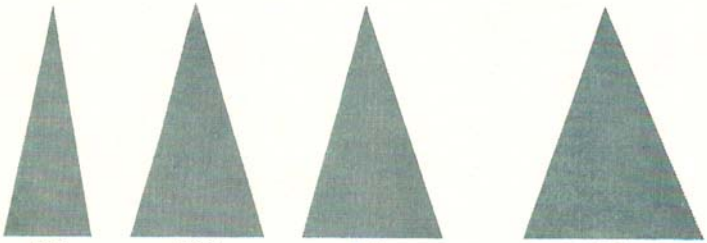
WHY SHEAR OR SHAPE CHRISTMAS TREES?

Michigan Christmas tree growers face ever increasing competition for markets. To meet this competition they must do all within their power to produce a quality product. A high quality tree must have good shape and form and have dense compact foliage. To insure good quality trees, some shearing and shaping is necessary.

A newly planted tree usually grows slowly until its roots are well established. After about the second or third year, growth speeds up and the tree develops a long slender leader. Continued rapid growth produces an open spindly tree with sparse foliage and too much space between whorls of branches. Usually the better quality soils produce this type of growth, resulting in poorly formed Christmas trees.

Shaping and shearing will improve the quality of all trees in a plantation and raise their value. In addition, it will make many trees saleable that would otherwise be culls, thus increasing the income from the plantation.



40% Minimum Acceptable Taper

66⅔% Ideal Taper (all species)

70% Maximum Acceptable Taper (for spruce and fir)

90% Maximum Acceptable Taper (for pines)

Less than 40% — candlestick taper (undesirable);
40% to 70% — normal taper (spruces and firs);
40% to 90% — normal taper (pines);
more than 70% — flaring taper (spruces and firs);
more than 90% — flaring taper (pines).

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The aim in shearing and shaping should be:

- To control height and width and develop uniform taper.
- To stimulate bud development, thus increasing the number of branches and the density of foliage.
- To remove multiple leaders and branch deformities.

WHAT SHAPE TREE IS BEST?

The ideal shape of tree should resemble an inverted cone, wide at the base and tapering uniformly to the tip. The ideal tree would be about two-thirds as wide as it is high, or a taper of 66⅔ percent. This means a tree that is 6 feet high would be 4 feet wide at the base. Acceptable taper in spruces and fir is from a minimum of 40 percent to a maximum of 70

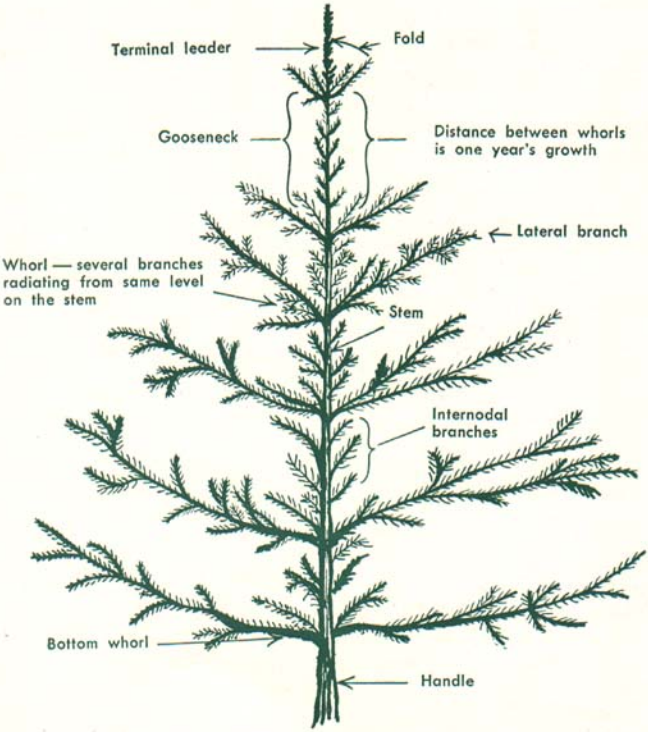

Fig. 2. Christmas tree terminology.

percent. In the pines, which often have a greater taper, acceptable standards will range from a minimum of 40 percent to a maximum of 90 percent.

WHAT TOOLS ARE NEEDED?

Any one of a number of tools may be used (see Fig. 3) from a pocket knife (4) to a machete (5). The pocket knife and hand pruners (1) are considered too slow for large scale operations. The machete (5), corn

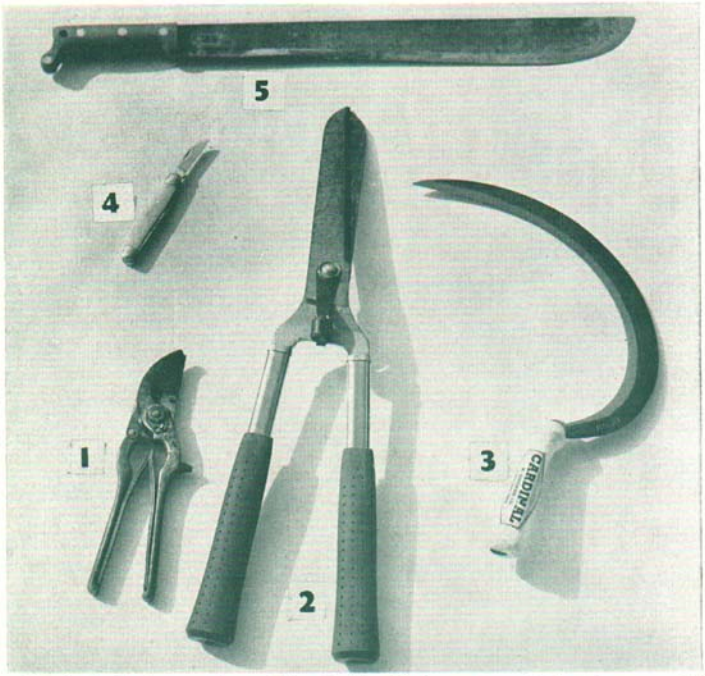

Fig. 3. Tools that may be used for shaping Christmas trees: (1) hand pruners; (2) hedge shears; (3) sickle; (4) pocket knife; (5) machete. Other knives, one-hand sheep shears, or grass shears may also be used (not shown).

knife or sickle (3) do a fast job but are rather crude tools. Most operators prefer the hedge shears (2) with 8 to 10 inch blades for the best all around shaping tool. Use the type with the rubber bumping block between the handles. This feature reduces fatigue. Keep the blades sharp and free of pitch. Kerosene, fuel oil or mineral spirits will remove pitch from the blades.

WHEN TO SHAPE TREES

Start shearing and shaping in a plantation when the trees average 24 to 30 inches in height. This will be the second or third year after planting for Scotch and red pine and the third to the fifth year for spruces and firs. This first operation for all species will remove all multiple stems. Where there are two or more stems, remove all but one, this to be the straightest and best formed. Also remove or correct major deformities.

DATES FOR SHAPING

All Pines

The shaping of pine trees is done in the spring of the year when the new growth (candles) are still soft and succulent, after they have practically completed their elongation and before the new wood hardens. This period will vary somewhat in Michigan from south to north, but is usually about the last week in June in the southern counties. Too early shearing will result in too profuse bud set and irregular growth. Pruning too late (after the wood has hardened) will result in few buds, slow growth and dead stubs. In most plantations there will be a period of about 10 days when conditions will be ideal for shaping.

Approximate Time Schedule for Shearing the Pines (Slight variations may occur due to site quality)*

Dates	Age	Height of trees	Practice to apply
June 20	1st year	4 to 10 in.	None
to	2nd year	10 to 20 in.	None
July 20	3rd year	20 to 30 in.	First shearing, remove multiple stems and deformities. Cut back terminal and laterals. Remove bottom whorl of branches to produce handle.
June 20 to July 20	4th year	3 to 4 ft.	Second shearing, select main terminal, cut back; then shear laterals.
June 20 to July 20	5th year	4 to 6 ft.	Third shearing — may need little work. Pay special attention to terminal leader. Cut to length, then clip any extra long growth from laterals.
June 20 to July 20	6th year	5 to 7 ft.	Allow to grow out. Little to no shearing.
Dec. 1 to 20	6th year	5 to 7 ft.	Harvest

* On the very good sites, trees will grow rapidly and need shearing in their third year and will be ready for harvest at the end of the sixth growing season. On poorer sites the growth may be much slower, the trees will not need shearing until the fourth season, and will require 7 to 8 years to reach harvestable size.

Fig. 4. Scotch pine terminal whorl. Normal development without shearing will give 4 to 7 buds per whorl; thus there will be 4 to 7 branchlets the next growing season. Too much height growth.

Fig. 5. Scotch pine terminal whorl showing profuse branching stimulated by shearing at proper season. Sixteen to 20 buds and branchlets are not uncommon. Balanced height growth.

Approximate Time Schedule for Shaping Spruces and Firs*

Dates	Age	Height of trees	Practice to apply
Oct. 1 to April 1	1st to 3rd year	5 to 20 in.	None
	4th to 5th year	20 to 30 in.	First shearing remove multiple stems and deformities. Cut back leader and shear laterals. Remove bottom whorl of branches to produce handle.
Oct. 1 to April 1	6th to 7th year	30 to 40 in.	Second shearing, clip main terminal and shear laterals. Cut out abnormal lateral growth.
Oct. 1 to April 1	8th to 10th year	4 to 6 ft.	Same as above
	10th to 12th year	5 to 7 ft.	Allow to grow out and harvest

* On the very good sites, trees will grow rapidly and need shearing in their third year and will be ready for harvest at the end of the seventh or eighth growing season. On poorer sites, the growth may be much slower, the trees will not need shearing until the fourth season, and will require 12 to 13 years to reach harvestable size.

All Spruces and Firs

The shaping and shearing of spruces and firs can be done at any time of year, but best results will be attained if the shearing is done during the period of the year when the tree is dormant. Any time from October 1 on through the winter to April 1.

Fig. 6. Scotch pine 3 years after planting, ready for the first shearing.

Fig. 7. Same tree as in Fig. 6 after shearing. Note the extra length left on the terminal leader and the improved shape of the tree.

HOW TO SHAPE AND SHEAR

Pines

With the tool to be used, whether it is a pocket knife, machete, sickle, hedge shears or what, start by cutting the leader to desired length (12 to 14 inches is usually best); then clip the laterals of the terminal whorl (see Fig. 2) so that they are 3 to 5 inches shorter than the terminal. Next proceed around the tree and clip all laterals so as to shape the tree into an inverted cone. Any branches that are too long or irregular may need to be removed back to second year wood. This cut should be made just ahead of a side branch so as not to leave a stub of dead wood. While shearing the lateral branches, it is best to hold the shears at an angle

so as to cut the branches in line with the contour of the cone rather than as flat steps. Prune off the bottom whorl of branches to produce a handle at base of stem.

On the second and third shearings proceed in the same manner as for the initial shearing but take more care to select and insure a main terminal leader.

Closely sheared or cropped trees do not sell as well as ones with some growth on them; therefore, all trees should be allowed to grow out for one growing season after shearing before you market them.

Red and Austrian pine normally grow shorter leaders than Scotch pine, and should not be shorn as heavily as the Scotch pine. Good results can usually be attained by just nipping the tips of the new growth on these species.

Fig. 8. Scotch pine 4 years after planting showing results of first year's shearing and ready for the second shearing. Note improved shape and density of foliage.

Fig. 9. Same tree as in Fig. 8 after the second shearing. Irregular growth of lateral branches is sheared to line. Main terminal cut longer than laterals on terminal whorl.

Spruces and Firs

Start shaping by first cutting back the terminal leader to proper length (8 to 12 inches). Make the cut at an angle ¼ to ⅜ inch above a good live single bud (see Fig. 10). This bud will then grow and develop into the terminal shoot.

Fig. 10. Terminal leader of Douglas Fir being cut at proper point. Note angle cut, ¼ to ⅜ inch above a good live single bud.

Warning — if this cut is made just above two or more buds in a cluster, you may encourage the development of multiple leaders.

After the main terminal is cut to length, proceed to shear the lateral branches and shape them into a cone-shaped tree without regard to individual branches. If there are some that are extra long cut them back to shape. Dormant buds will then develop and the new growth from these buds will cover up the shearing wounds. Remove bottom whorl of branches to produce a handle at the base of the stem.

Second, third, and fourth shearings on these trees will be much the same as the first but with special emphasis upon maintaining a single terminal leader.

CONTROLLING GROWTH OF PINES BY DE-BUDDING

This is a practice that has been employed by nurserymen for many years. It is merely thumbing out or removing certain buds early in the

spring before new growth starts. This can slow the growth of certain branches while others are allowed to grow. The practice can be combined with shearing to form a better shaped tree. However, the practice is too slow and time consuming to be considered practical for the large scale Christmas tree producer.

Fig. 11. Spruce tree before shaping; note irregular branch tips.

Fig. 12. The same spruce as in Fig. 11 after the first shearing. Terminal cut back and all laterals brought into proper shape.

SHEARING PINES AND THE CONTROL OF SHOOT MOTH

Some growers, foresters, and entomologists have advanced the belief that the shearing of pines will control infestations of shoot moth. They point out that the shearing of infested shoots will eliminate the larvae.

Generally speaking, unless special care is taken to cut away such tips and burn them, the larvae will have pupated at shearing time (June 20 to July 20) and will either already have hatched into adults or be so close to hatching that the cycle will not be interrupted.

If there is any control to come from shearing, it is more likely to come from the fact that late shearing may cut away the buds and tips where

the adult moth has already laid its eggs. These tips then fall to the ground and decompose and the eggs are not likely to hatch. Also, control may come from the fact that new buds are rather slow to develop after shearing, and they may not be present or large enough to accommodate the young larvae.

Research workers have examined this possibility and it appears that delaying the shearing to the latter part of the shearing season (July 20) will give a considerable amount of control.

Fig. 13. Douglas fir tree before first shearing showing irregular growth of laterals.

Fig. 14. The same tree as in Fig. 13 after shearing.

SUMMARY

- There is a need for better quality Christmas trees on Michigan markets. Shearing and shaping will improve Christmas tree quality.

- Shearing and shaping will not only improve the quality of good trees but will bring into saleability many trees that would otherwise be culls.
- Pine species should be sheared June 20 to July 20 when the new growth is succulent.
  (a) Too early shearing may cause too heavy bud set and irregular growth.
  (b) Too late shearing may cause small buds, too few buds, and many dead stubs.
- Spruces and firs should be sheared when the tree is dormant, October 1 to April 1.
- Start shaping Christmas trees when the average trees are 24 to 30 inches in height.

Fig. 15. Wild white spruce sheared the previous season, now ready for second shearing.

Fig. 16. Same tree as in Fig. 15 after the second year shearing.

- Do not market trees the fall after they have been heavily sheared. Let them grow out at least one season after shearing before marketing.
- Delayed shearing of the pines will help to control shoot moth infestations.
- Wild stands of spruce and fir will respond to shaping and shearing.

Fig. 17. Wild grown Balsam Fir sheared the previous season now ready for second shearing.

Fig. 18. Same tree as in Fig. 17 after the second shearing.

Cooperative extension work in agriculture and home economics. Michigan State University and the U. S. Department of Agriculture cooperating. N. P. Ralston, Director, Cooperative Extension Service, Michigan State University, East Lansing. Printed and distributed under Acts of Congress, May 8 and June 30, 1914: 1P 2R-3:62-10M-WE