Shearing Balsam Fir Christmas Trees

Shearing Balsam Fir trees has resulted in density, high quality that consumers have become accustom to now. Growers shear trees to meet this quality, follow consumer preferences, as well to improve the quantity of saleable trees. Shearing provides control over the shape of the tree and manipulate lateral growth which give the large fluffy appearance. It also allows to fix problems in the trees and ultimately to reduce the number of trees that will be called out in any given year or that won't meet the grade. Consumer development is trees preferences have resulted in grading systems. A trees value is measured mainly by its grade.

Shearing Christmas Trees….

- Increases quality and quantity of saleable trees,
- Control's form, encourages foliage density,
- Influence grade and therefore value,
- Treat abnormalities; prevents culls.

The goal is to produce a uniform, symmetrical tree with good density, high quality foliage, and minimal to zero damage.

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Grading Christmas Trees

To introduce the concept of shearing, its important to recognize grades of trees, because this will be your visual when you are out in the lot shearing. In Nova Scotia, there are five different grading systems on the go, so asking multiple growers will come back with multiple answers to what grade category a singular tree falls under. The chart below shows where each grading system lines up, the basis being the United States Department of Agriculture (USDA) standards. The green on the left is the grading standards and moving to the right is the best, better, and good tree ratings.

USDA	Premium	1	2
NS GREEN	Top Grade	Second Grade	Third Grade
LCCTPA	1	2	3
NECTA	Select-best / Premium- high end fancy and low end select	1-high choice and low fancy	Selected Natural
NS	Select	Fancy	Choice

United States Department of Agriculture Standards

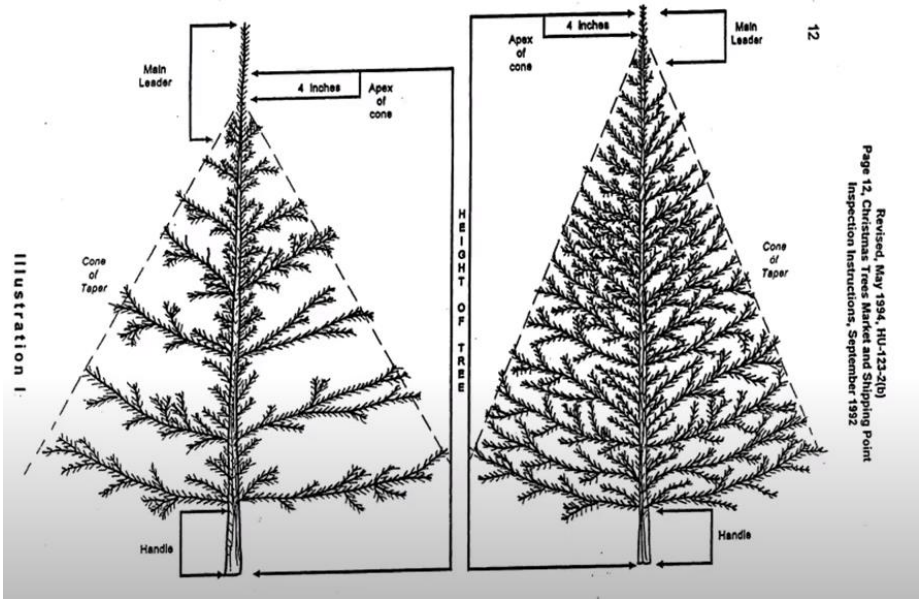
Premium	Number 1	Number 2
Characteristics typical of the species		
Butt trimmed; except for trees graded "on the stump''		
Normal taper		
Fresh		
Clean	Fairly clean	
Healthy		
Well shaped		
Not less than heavy density	Not less than medium density	Not less than light density
Handle length not less than 6 ", or more than 1-1/2 " for each foot of tree length (unless graded "on the stump")		
3 faces; 1 minor defect	3 faces; 2 minor defects	
Remaining face may not have more than 1 noticeable defect		

Balsam Fir Premium Characteristics

- Needles are short, 1 ¼ to 1 ½ inches long, flat, dark green and usually rounded at the tips. Needles are attached at opposite side on thin, grayish, finely haired twigs.
- Twigs resemble crosses, tiny twigs are approximately right angles.
- The buds are rounded at the tip and are coated with distinct waxy patch. Cones are attached upright to the branch, and are 2 to 3 inches long, purple in colour, resinous, with cone scales hiding in bracts. Barn is gray or brown, thin fairly smooth and resin blisters. Bark becomes scaly on older trees.
- Balsam Scent.

Taper

The standards talk about taper as well, where most Christmas trees should grow in a cone shape and how most growers commit to shearing their taper line. The taper is judged by the ratio between the width of the tree by the height from the base of the handle.



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Missing the Grade

- Severely uneven density,
- Main stem curved more than 6”,
- Severe insect or disease damage or abnormal curling off needles,
- Main stem broken below the top whorl or 3+ branches broken near the truck,
- Several Physical damage,
- Heavy amounts of foreign material or vines,
- Multiple stems (not leaders),
- Sever abnormal curling of needles,
- Weak lower branches affecting more than ¾ of the bottom whorl.

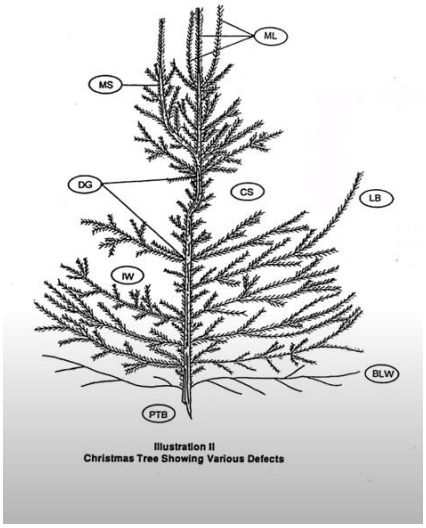


Illustration II
Christmas Tree Showing Various Defects

List of Defects:

AC	*Abnormal curling of needles*	*LN*	*Loss of Needles*
BB	*Broken Branches*	*MD*	*Mechanical or Physical Damage*
BLW	*Barren Lower Whorl*	*ML*	*Multiple Leaders*
CN	*Crow’s Nest*	*MS*	*Multiple Stems*
CS	*Curvature of Main Stem*	*UD*	*Uneven Density*
DG	*Decided Gap or Shelf*	*WB*	*Weak branches*
FM	*Foreign Material or vines*	*NF*	*Not fresh or healthy*
GN	*Gooseneck*	*MIS*	*Not Well Shaped*
H	*Hole*	*PTB*	*Poorly trimmed Butt*
ID	*Insects or Diseases*	*OH*	*Off-Length Handle*
IW	*Incomplete Whorl*	*OS*	*Off-size Height*
LB	*Long Branches*		

Density

One of the Main factors when looking for your premium tree is the density. Factors contribution to the density of your tree include:

- Number and size of branches within the whorl,
- Distance between whorls,
- Number and arrangement of branchlets on each branch,
- Extent of internodal branching,
- Needle arrangement,

- Needle length,
- Species.

Scaling the Lot

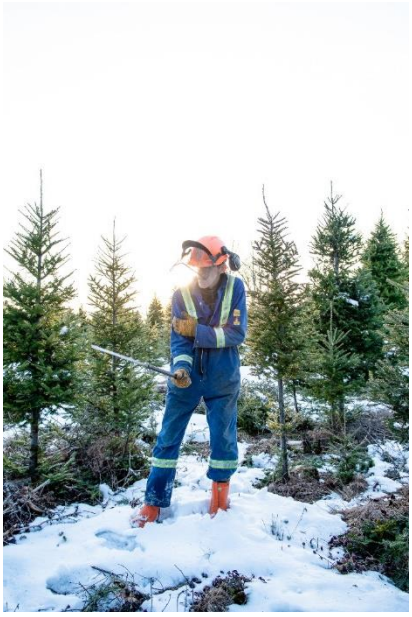
Balsam fir will naturally attain a cone shape but, shearing is still necessary…

- To treat lateral growth,
- to treat injury,
- to encourage denser foliage,
- to improve taper and balance,
- to raise the grade.

Long-Term Planning

A tree's first shear will start to develop that "shear line" or the taper of the tree.

- Each year, the shear line will be expanded by the new growth, but the taper will remain.



Annual Shearing will…

- encourage bud growth along the shoot,
- encourage internodal branch growth by limiting whorl growth,
- allow light to penetrated to the internodal branches resulting in uniform new foliage,
- hide the central stem (i.e., improve the grade).

When to Shear

Mid-July to Mid-August is the best time to shear Balsam fir.

- Shear every summer.
- Shoot elongation is complete but buds that have already started will continue to grow.
- Buds left after shearing have less competition for nutrient supply during the remaining two to three months of development.

Shearing must be continued annually through to harvest.

- The second-best time for shearing is fall.
- Late spring shearing is the least desirable in terms of diverting nutrients to the remaining buds on the tree.

Except for corrective work, shearing should usually begin when trees have about 4 feet (1.2m) of crown foliage above the handle.

Corrective Shearing

- Given time and proper shearing, trees demonstrate an amazing capacity for recovery from injuries but remember; time is money.

Uneven Density & Open Areas

Uneven Density

- Uneven density is usually due to an injured leader or slow growth.
- When normal top growth resumes, shear of the current year's terminal branch growth to restore taper.
- Hand pruners may be used to remove part of or entire branches form dense sections if their length and density interfere with the tree's symmetry and uniformity.

Open Areas

- Areas of sparse or bare foliage are usually the results of a lost whorl or internodal buds or branches.
- Annual shearing will usually correct this.
- When heavy shearing to correct deformities is needed, good tree growth must sometimes be sacrificed to maintain form. Unfortunately, this lengthens production time.

Uneven Symmetry

- Competition in natural stands or injuries will result in unsymmetrical trees.
- The wide side of the tree should be heavily sheared after the weak side has been sheared.
- Shearing to correct form should be continued over two or more years.
- Keep some of this most recent growth on all branches.

Open Density

- In natural stands that have not had regular annual shearing; open density can be an issue.
- Spaced whorls, exposed central stem, and light foliage are evident.
- The shear line of advanced regeneration should be established by cutting the terminal and subterminal shoot form the whorl branches.
- The leader should be cut to about 6 inches (15cm).
- When Christmas tree are developed from advanced regeneration the product is usually a heavy tree with a large trunk.

Goose Neck

- A stem between two whorls lacking internodal growth.
- A gooseneck longer than 10-12 inches (25-30 cm) is difficult to correct.
- The stem must be cut to remove the bare section.
- New shoot growth from the node will provide a leader placement.

Atypical Branches

- Branches on young balsam fir usually grow outward from the stem at an angle of 50 to 80 degrees.
- Sometimes they will do the reverse and become vertically oriented if allowed to remain.
- Known as “horns”, it is best to remove horns when they are first discovered.

Trouble at the Top

- Bud failure resulting in leader loss is common on young trees.
- The whorls shoot with the strongest vertical orientation should be selected for leader replacement and rest removed.
- Leader failure will promote latent modal bud maturity ► vertical shoots in the next year.
- Consider the age of the tree and period it has until harvest.

Early Corrective Pruning

- Small seedlings often develop deformities that can have long-term effects.
- Multiple tops and double stems.
- Identify the best leader or stem and remove the competing growth.

Butt Pruning

The removal of Branches near the ground to create a handle.

- May reduce the incidence of foliage diseases such as needle casts.
- Loss of shade for emerging seedlings.
- Loss of moisture retention for emerging seedlings.
- Prevents competition for emerging seedlings.

Technique

1. Move around the tree while shearing.
2. Use both hedge shears and shearing knives.
3. Hand cutter should always be carried.
4. Motor or battery-powered shearing machines.
5. All tools used in the lot should be sanitized periodically.

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