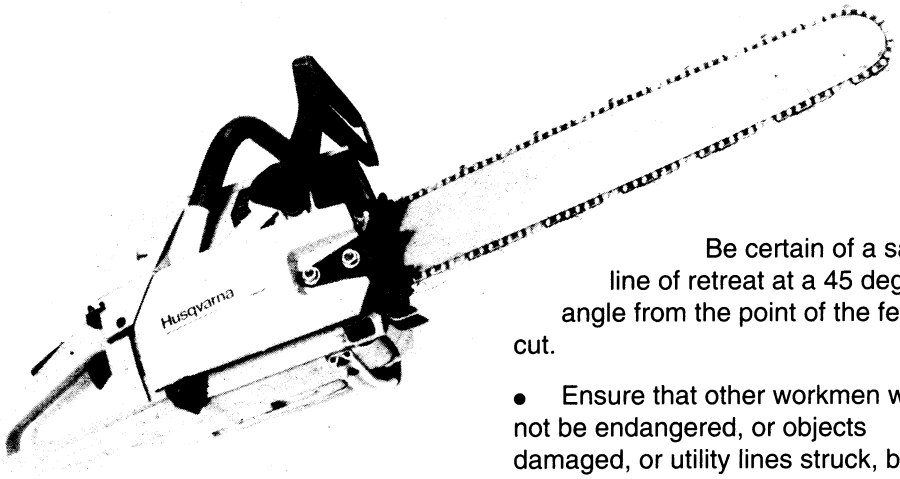
BAYSTATE ROADS PROGRAM

TECH NOTES

Safe Cutting Methods

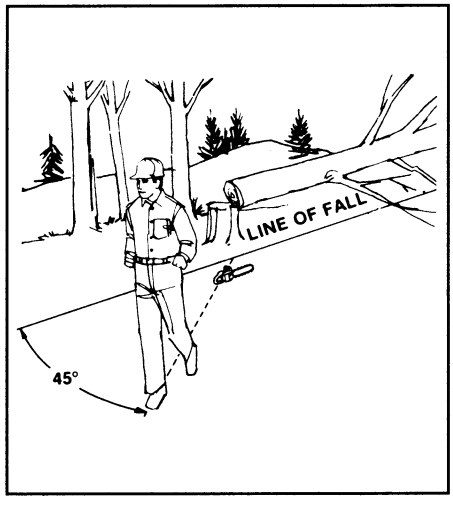


The following precautions should be taken before cutting with a chain saw:

- Size up the tree to be felled and the area around it, watching for dead trees or branches which might fall. If possible, remove them.
- Determine the line along which the tree can be most easily felled; take into account lean of tree, heavy branches, possible wind effect. Never fell trees in high wind condition.
- Thoroughly clean the area at the base of the tree. Obstructions here may cause kickback.
- Determine where you will be positioned in making the final felling cut.

Be certain of a safe line of retreat at a 45 degree angle from the point of the felling cut.

- Ensure that other workmen will not be endangered, or objects damaged, or utility lines struck, by the falling tree.
- Take one last look to make sure no potential hazard has been missed.



Plan a safe retreat before felling a tree

Saw Handling

- Keep both hands on the saw throughout the cutting operation.
- Be sure your thumb is wrapped under the bar atop the saw. Keep your arms bent; outstretched arms will not only increase the chance of kickback, but will make you tire quickly.
- A firm, guiding grip is all that is required when the saw is operating properly. Let the saw do the work; don't force it through the cut. This will reduce the force of any kickback.
- Make certain of firm footing, in a balanced position. Stand to one side of the cut. Keep your legs out of the way, and keep your toes out from under material being cut.
- Do not lean forward or sideways to cut.
- If possible, avoid making cuts above waist level. Never make cuts above your shoulders.
- Stay on the uphill side of the cut to avoid being injured or unbalanced by rolling material.

(Over)

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- Be aware of the path of the saw before, during, and after the cut.

- Always cut with the engine operating at full speed.

- Take your hand off the trigger between cuts.

- Never allow someone else to hold the wood as you cut it.

- Watch for branches that may spring back when cut. Small flexible branches should be cut with pruning shears, an ax or a hand saw. Don't try to cut them with a chain saw. Their flexibility may cause a chain saw to bounce toward you.

- Do not cut brush or shrubbery with a chain saw; closely spaced branches can cause kickback. Use brush cutters, hedge trimmers or a hand saw.

- Don't work alone. An extra pair of hands will make some dangerous situations safe, and if you are injured the other person can get help.

Felling

The first cut is the notch cut. On the side of the tree facing the direction in which it is to fall, cut as close to the ground as possible. The notch should be cut to a depth of at least one-third the diameter of the tree.

The notch should be straight on the bottom, and angled down from the top. Make the angle cut first, then a straight cut to meet it, pushing out a wedge of wood. (See box - Open-Face Felling).

The felling cut is then made on the side opposite the notch, and slightly above it (two inches recommended). It is a straight, horizontal cut. Never cut through to the notch. Felled correctly, the tree will begin to topple while there is still a hinge of wood between the notch and the felling cut.

The hinge guides the tree on the correct fall line and anchors its base to prevent it jumping back. Just before the tree begins to topple, give a warning shout. The saw motor must be stopped when the shout is given. When the tree begins to fall, shut off the saw, place it on the ground at the base of the tree, and move quickly along your pre-arranged line of retreat.

Limbing

Limbing is the most hazardous of woods operations.

Where practical, limb from bottom to top on the felled tree. If possible, keep the trunk of the tree between you and the chain saw during cuts. Position yourself so that no part of your body is in line with the chain, so that the chain will not strike your leg if the saw slips or completes the cut sooner than expected. Never move your feet while making a cut.

To avoid kickback when limbing, avoid sawing with the point of the guide bar. Be careful to keep the nose of the bar from striking another limb or other obstruction.

Limbs should be moved to one side as they are cut off, reducing the danger of tripping and of kickback.

If the felled tree is on a slope, be extremely cautious, especially in removing limbs under the tree. The limbed tree could roll downhill. Work up-slope from the trunk as much as possible. Roll the tree to take tension off a branch before cutting it. Block the tree or log to prevent rolling during the cut.

Bucking

The most important factor in bucking (cutting the trunk) is preventing the saw from being pinched in the cut. Make sure the log is lying firmly in place. When possible, fell the tree so that you will have a good working height.

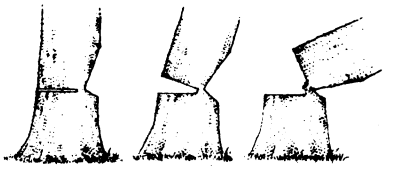
If the trunk is supported along its entire length, make cuts from the top (overbuck) to a depth of one third the diameter of the log. When these cuts are completed, roll the log over and make the final cuts. This prevents pinching the guide bar and chain. Make sure the chain does not hit the ground. To avoid throwback, stones, bark and debris should be cleared away.

Open-Face Felling

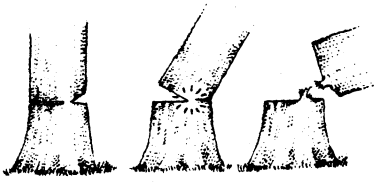
The standard cut used to fell a tree harkens to the days of handsaws and axes. A cut parallel to the ground was made with the saw. Next, wood was notched out with an ax, cutting down to the saw cut from the top. Finally, a back cut was made with the saw, slightly above the notch.

The open-face felling method is more scientific. It relies on a notch of 90 degrees, which ensures that the tree is attached to - and thereby controlled by - a hinge of wood during its entire trip to the ground. In the more conventional notch, which is about a 45-degree slice, the notch closes as the tree drops and the hinge breaks. Half of the tree's fall to the ground, then, is uncontrolled.

OPEN-FACE FELLING METHOD



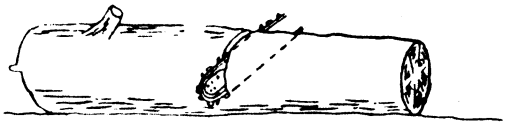
CONVENTIONAL METHOD



From "The Most Awesome Teeth in the Woods," by Lionel Atwill, Sports Afield, Nov. 1988, p. 83.

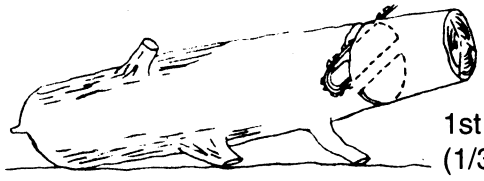
Bucking Situations

Cut from top (Overbuck) - Avoid cutting earth



Work supported along entire length

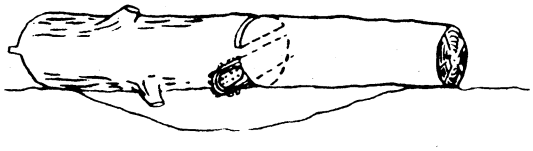
2nd cut overbuck (2/3rd. dia.) to meet 1st cut (to avoid pinching)



1st cut underbuck (1/3rd dia.) (To avoid splintering)

Work supported on one end

1st cut overbuck (1/3rd dia.) (to avoid splintering)



2nd cut underbuck (2/3rd dia.) to meet 1st cut (to avoid pinching)

Work supported on both ends

From "What You Should Know About Safe Chain Saw Operation," Cooperative Extension Service, Michigan State University, May, 1980.

If the log is supported from both ends, cut one third the diameter from the top (overbuck), then cut upward from the underside (underbuck) to meet the first cut (see diagram).

Using Wedges

When binding occurs, use wedges. However, stop the chain so there is no danger of driving a wedge into the moving chain. Use only wooden, aluminum or plastic wedges. Do not use steel or iron wedges, as they may do considerable damage to the chain if struck. Also, be alert to the fact that if the chain should strike the wedge, it will probably hurtle it out of the tree with enough force to inflict considerable injury. Position yourself and helpers accordingly.

On windy days, for leaning trees, or where trees must fall in a specific direction, wedges are essential. Two wedges are usually used. When the final cut is up to the proper depth for felling the tree, remove the saw. Shut the chain saw off and move it back to a safe position. Then tap the wedges with a sledge or mall to fell the tree.

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