

Basic Chainsaw Felling and Manual Takedown

Irish Forestry Safety Guide
(IFSG)
302



Introduction

This leaflet covers basic felling and manual takedown in plantations, or of single trees in open spaces where there is a minimum of two tree lengths clear space in all directions, and pulling aids are not required. It does not cover exceptional situations where the risk assessment shows advanced or alternative felling techniques are required. In such circumstances, seek specialist advice and agree safe methods of working. For guidance on personal protective equipment (PPE), the machine, preparing to work, maintenance, fuelling and starting procedures see IFSG leaflet 301 *Using petrol-driven chainsaws*.

You can use this leaflet, along with the chainsaw manufacturer's handbook, as part of the risk assessment process to help identify the controls to put in place when carrying out basic felling and manual takedown.

You must also assess the effect of the site and the weather as well as following this guidance.

All operators must have had appropriate training in how to operate the machine and how to carry out the tasks required.

Risk assessment

The range of hazards likely to be encountered must be considered in the risk assessment process and satisfactory control measures put in place to ensure safe working.

A designated competent person, who will be on site throughout works, must be named in this risk assessment process as Site Safety Co-ordinator.

Specific attention must be paid at planning stage to chainsaw activities. Risk assessments must be reviewed and implemented by competent persons at the commencement of activities. Particular attention must be paid to effective communication between parties on site.

Risks are increased on sites where direct line of sight cannot be maintained between chainsaw operators and other colleagues. In these circumstances, extra controls are essential. Regular radio or mobile phone contact with the cutter with agreed frequent check-in times (i.e. every 20 minutes) can be a good control. If a check-in is missed, or communications fail, work must stop until contact is restored.

Controls must be a site based decision as part of the site specific risk assessment. Lone working of chainsaw operators should be avoided as much as possible.

Tools and equipment

- 1
- Check that all necessary aid tools are available and in a serviceable condition. Aid tools that may be needed include:
- a breaking bar/felling lever;
 - a sledgehammer;
 - small and large alloy or plastic wedges;
 - high lift wedges;
 - hydraulic or mechanical felling wedges;
 - hydraulic toe jack and/or appropriate tree lifting jack; and
 - a hand winch complete with handle, cable, pulleys and stops.

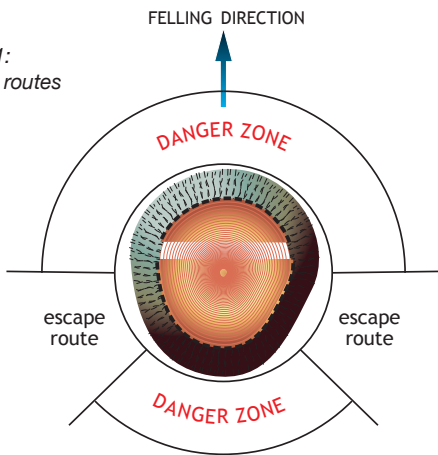
Preparing to fell

- 2
- It is important to remember that felling is a one-person operation.
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- 3
- A safe working distance of two tree lengths must be maintained, unless exceptional conditions and a comprehensive risk assessment dictate otherwise.
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- 4
- Ensure that all underground and overhead services such as gas, water, sewage, electricity and telephones have been identified before felling.
-
- 5
- When felling adjacent to overhead electric lines, a clearance of not less than twice the height of the tree plus a network hazard zone must be maintained. Felling should be directed away from the electric line. Where felling is within this area, refer to IFSG 804 (Electricity at Work; Forestry).
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- 6
- Do not fell if wind conditions are such that control over the felling direction might be lost.

- 7** Look out for dead wood, insecure branches and any signs of decay both in the trees to be felled, and in adjacent crowns. Be constantly aware of likely danger, especially when the tree begins to fall.

- 8** Decide the direction of fall and select a suitable escape route (see Figure 1). Ensure the escape route is clear of obstructions.

Figure 1:
Escape routes



- 9** Plan the work to minimise manual handling.

- 10** Remove debris from around the base of the tree and any vegetation which might obstruct the operation. Flatten any soft vegetation which could restrict the dispersal of chainsaw exhaust fumes.

- 11** When removing low branches from the tree (brashing), ensure the operator is protected from potential kickback by keeping the guide bar out of line with the body, and by using the stem for protection.

- 12** Do not use the saw above shoulder height.

Felling

- 13** Always make a sink cut. This allows the tree to be felled on a hinge that controls the rate and direction of fall.

- 14** The top and bottom sink cuts should meet exactly with no over-cutting which could weaken the hinge.

- 15** Make the main felling cut at or slightly above the level of the bottom sink cut (see *Figure 2*). Use appropriate aid tools or techniques where there is a possibility of the tree moving and trapping the saw.

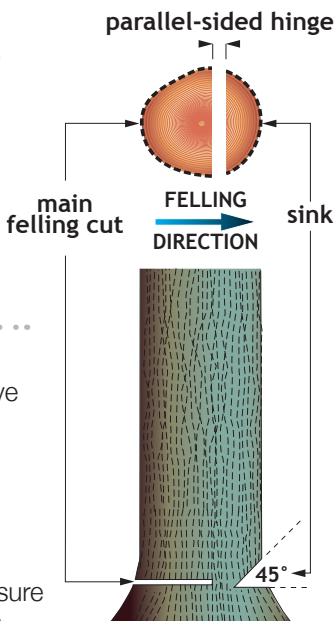


Figure 2: Felling cuts

- 16** To achieve good directional control, leave a parallel-sided hinge not less than 25 mm thick at right angles to the direction of fall.
- 17** Where rot is found, ensure that the felling cuts are adjusted to maintain control of the felling direction.

- 18** If the chainsaw jams, switch it off. Pull the saw gently to see if it can be dislodged, otherwise use the correct aid tools to open the cut. If the tree has to be left, appropriate measures should be taken to ensure the exclusion zone is maintained. Reassess the situation before continuing the felling operation.

- 19** Where necessary use the appropriate felling aids. When using a breaking bar to lever over the tree, keep the back straight using the legs to lift. Keep both hands on the lever (see *Figure 3*).

- 20** Once any felling cut has been started on a tree, the tree must not be left standing. Do not start a new operation until the tree has fallen.

- 21** When the tree begins to fall, and site conditions permit, move at least 3 metres into the escape route, to ensure a safe distance from the butt of the tree. Monitor the movement of the tree, watching for falling branches and tops. Beware of the butt rebounding or the whole tree sliding when felling on a slope.



Figure 3: Use of breaking bar

- 22** So far as is reasonably practicable complete any necessary de-limbing of a felled tree.

Takedown of hung up tree

- 23** Risk assess the situation as soon as the tree becomes lodged and determine whether it can be dealt with immediately, safely and effectively with the equipment available to the operator. If this cannot be done the danger area around the tree must be taped off, others on site informed of the danger and FWM and other interested parties informed by phone as necessary.
- 24** Ensure that no other person is within a distance equal to twice the length of the tree or directly below on steep slopes.
- 25** Even proper lifting techniques and manual aid tools have their limitations when it comes to dealing with heavy loads. In such situations use mechanical assistance.
- 26** Carefully assess the tree to decide the safest and most effective method of takedown, and identify the danger areas around the tree.
- 27** When using a chainsaw to remove part or all of the hinge, work from a safe position at the side of the tree.

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When rolling lodged trees use a pushing movement, maximum leverage and muscular effort is obtained by keeping the lever between waist and chest height. Stay outside the danger zone (see Figure 4).

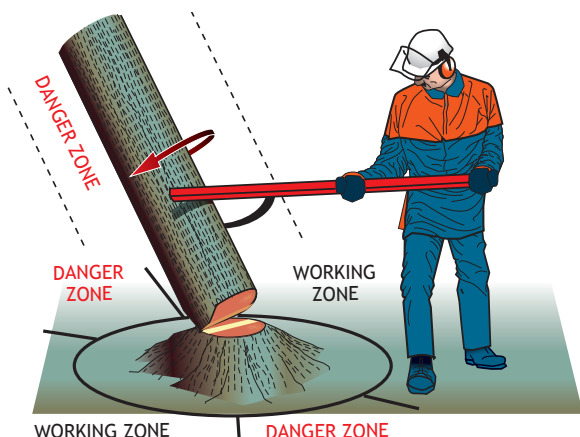


Figure 4: Rolling lodged tree

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When moving the butt using a pole as a lever, keep behind the pole, and use the legs to push.

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When the tree begins to fall let go of the pole or lever.

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Do not:

- fell the supporting tree in an attempt to free the hung-up tree;
- climb a hung-up tree;
- fell another tree across the hung-up tree in an attempt to dislodge it;
- walk or work under a hung-up tree; and
- cut pieces off the butt end of a hung-up tree in an attempt to dislodge it.

Further Information and Guidance:

Visit our website at www.hsa.ie, telephone our contact centre on **1890 289 389** or email wcu@hsa.ie

Use BeSMART, our free online risk assessment tool at www.besmart.ie

Check out our range of free online courses at www.hsalearning.ie



Further reading

Available at www.hsa.ie/eng/Publications_and_Forms/Publications/Agriculture_and_Forestry/

- Code of Practice for Managing Safety and Health in Forestry Operations
- Information on Health and Safety Responsibilities of Forest Landowners who intend to fell their trees
- Guide to Safe Working with Timber and Chainsaws
- Chainsaw Safety Training Advice Information Sheet

IFSG Leaflets:

- 301 - Using Petrol Driven Chainsaws
- 302 - Basic Chainsaw Felling and Manual Takedown
- 303 - Chainsaw Snedding
- 304 - Chainsaw Cross Cutting and Manual Stacking
- 306 - Chainsaw Clearance of Windblow
- 307 - Chainsaw Felling of Large Trees
- 503 - Extraction by Forwarder
- 603 - Mechanical Harvesting
- 804 - Electricity at Work: Forestry

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This guide sets out evidence of good practice for a specific forestry task. Deviation from the guide should only be considered after a full risk assessment has been undertaken by competent persons. Health and safety obligations **MUST** be met at all times.

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