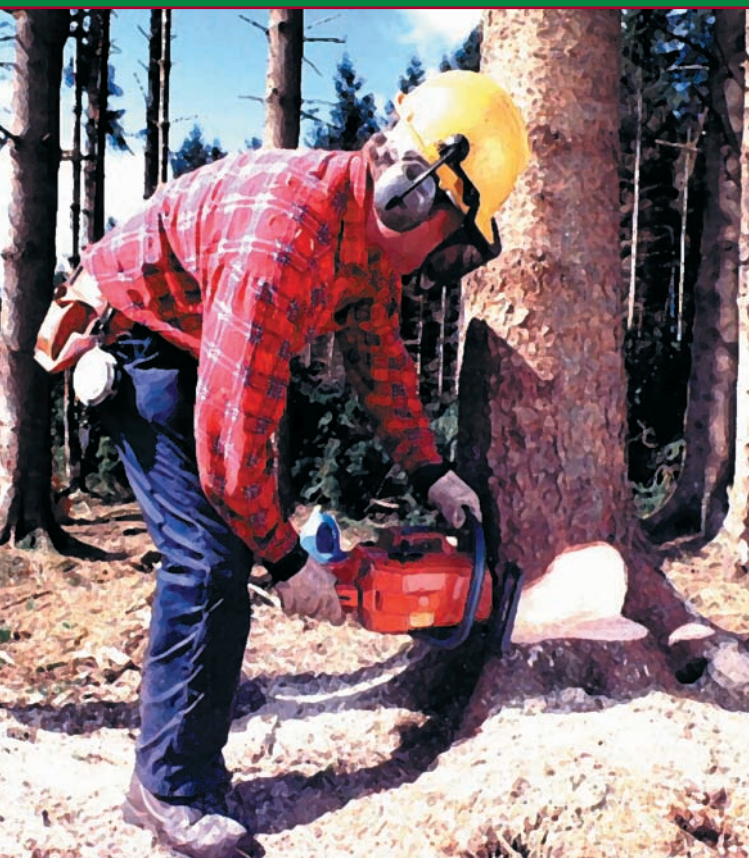




# Basic chainsaw felling and manual takedown



## 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 AFAG 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 (see HSE leaflet INDG317 *Chainsaws at work*).

This guidance should be understood and applied in conjunction with that given in other leaflets in this series.

## Tools and equipment

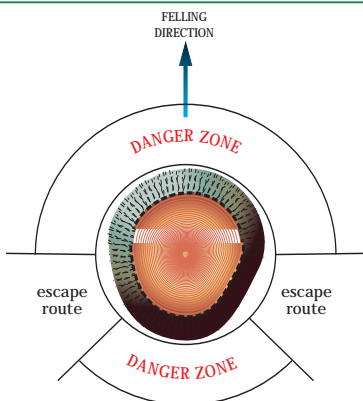
- 1** Check that all necessary aid tools are available and in a serviceable condition. Aid tools that may be needed include:
  - a breaking bar;
  - small and large alloy or plastic wedges;
  - a sledgehammer;
  - a hand winch complete with handle, cable and strops. (Use of the hand winch is detailed in AFAG leaflet 310 *Use of winches in directional felling and takedown*.)

## Preparing to fell

- 2** It is important to remember that felling is a one-person operation.
- 3** A safe method of operation must be agreed to ensure that a safe working distance can be maintained between workers (at least two tree lengths) and between workers and machinery (outside the risk zone of the machines being used).
- 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 must be maintained. Felling should be directed away from the electric line. Where felling is within

two tree lengths the advice of the owner of the overhead electric lines must be sought. Specific details are given in AFAG leaflet 804 *Electricity at work: Forestry and arboriculture* and the AFAG priced booklet *Management of electricity at work: Forestry and arboriculture*.

- ❑ **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.

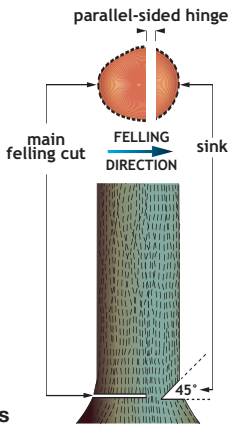


**Figure 1** Escape routes

- ❑ **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. 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).



**Figure 3 Use of breaking bar**

- ❑ **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, step back and to the side into the escape route. Watch for falling branches and tops. Beware of the butt rebounding.
- ❑ **22** So far as is reasonably practicable complete any necessary de-limbing of a felled tree (see AFAG leaflet 303 *Chainsaw snedding*) before felling another tree onto it.

## Manual takedown

- ❑ **23** Make every effort to take down a hung-up tree immediately. If this cannot be done, establish adequate exclusion zones. Move to an alternative felling area until the hung-up tree can be safely dealt with.
- ❑ **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.
- ❑ **28** 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).

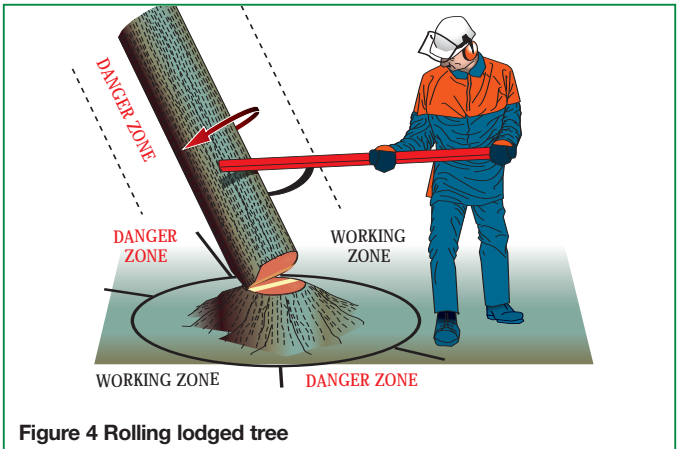


Figure 4 Rolling lodged tree

- ❑ **29** When moving the butt using a pole as a lever, keep behind the pole, and use the legs to push.
- ❑ **30** When the tree begins to fall let go of the pole or lever.
- ❑ **31** 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;
  - cut pieces off the butt end of a hung-up tree in an attempt to dislodge it.

## Further reading

<i>Using petrol-driven chainsaws</i>	AFAG301
<i>Chainsaw snedding</i>	AFAG303
<i>Chainsaw cross-cutting and manual stacking</i>	AFAG304
<i>Chainsaw clearance of windblow</i>	AFAG306
<i>Chainsaw felling of large trees</i>	AFAG307
<i>Use of winches in directional felling and takedown</i>	AFAG310
<i>Emergency planning</i>	AFAG802
<i>Electricity at work: Forestry and arboriculture</i>	AFAG804
<i>First aid at work: Your questions answered</i>	INDG214
<i>Managing health and safety in forestry</i>	INDG294
<i>Chainsaws at work</i>	INDG317
<i>Protect your hearing or lose it!</i>	INDG363

These publications are available from HSE Books - see 'Further information'.

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**This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.**

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