



HEALTH AND SAFETY  
AUTHORITY

# Guide to Safe Working with Timber and Chainsaws



## Our vision:

A national culture where all commit to safe and healthy workplaces and the safe and sustainable management of chemicals.



# Introduction

This guidance document provides general advice for persons working with timber. The advice is not intended to be exhaustive, but should be used as a basis for good practice when deciding how to meet the general duties under Safety, Health and Welfare at Work legislation.

Felling timber using chainsaws is one of the most dangerous tasks carried-out on farms and in forests. Accidents with chainsaws are generally very serious. The major causes of timber related fatal accidents are being struck by falling trees or branches. Bystanders, including children, have been killed in a number of these cases. 13 fatal accidents have occurred on farms and forests when working with timber between 1996 and 2008. Self employed farmers and contractors are particularly at risk. These persons may use chainsaws for only part of their general work and may lack the experience and knowledge required for certain tasks. The Teagasc National Farm Survey indicates that about 6.5% of all injuries are chainsaw or wood related indicating that 120 serious injuries occur each year. Chainsaw injuries involve cuts and lacerations to the limbs, neck, head and trunk. Training in chainsaw use and the wearing of protective clothing to protect against these injuries is necessary. Chainsaws produce noise in excess of 100 decibels so hearing protection must also be worn.

# The Chainsaw

This section provides guidance on the safe use of portable, hand-held, petrol-engine chainsaws.

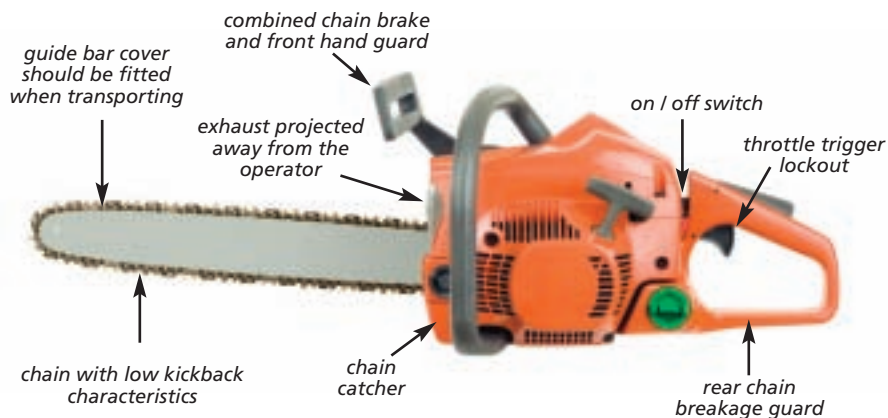


Figure 1: Chainsaw (Source: Chainsaws at Work, HSE, UK)

## Using the Chainsaw

- The chainsaw is designed for use by right handed operators and must be used in a right handed manner. The right hand should be on the throttle with the left hand holding the handle, with the left thumb under this handle at all times.
- Make sure that you know where the controls are located, you understand their function and they are in good working order. You may have to stop the chainsaw quickly in an emergency.
- Make sure that the chainsaw is properly maintained. In particular, ensure that the air filter is clean, the engine properly tuned and that the chain is correctly sharpened.

- To prepare to start the engine, hold the saw firmly in position at ground level on a level surface by putting the right foot on the handle and making sure the chain is clear. Hold the front handle with the left hand and pull the starter cord with your right hand.
- Apply the chain brake when the chainsaw is not cutting, this is done by letting engine revs drop to idle and applying the chain brake with the back of the left hand, by rolling the hand on the front handle.
- **Never** use the chainsaw above shoulder height or when off balance.
- Chainsaws should never be used when standing on a ladder, unless the operator is a trained tree surgeon and the ladder is securely tied in position.
- Chainsaw operators should always be alert and aware of potential dangers.
- Do not use a chainsaw if you are tired.
- Chainsaws are designed for one person operation only.
- Maintain a safe distance from other persons i.e. a minimum of twice the height of the tree being felled.
- Containers for chainsaw fuel must be clearly labelled. Keep a safe distance from ignition sources when fuelling the chainsaw.
- Avoid working alone when operating a chainsaw. If this is not possible, put in place procedures to raise the alarm if something goes wrong (for example, use of a mobile phone).
- Shut off the engine before moving from one area to another. Never leave the chainsaw unattended while idling.

## Safety Checks

***Your chainsaw should be fitted with the following devices to ensure safe operation:***

- A clearly marked on/off switch.
- Chain brake (incorporating a front hand guard).
- Safety dead handle throttle.
- Chain catcher.
- Rear hand guard.
- Anti vibration mounts.
- Exhaust system to direct fumes away from the operator.
- Chain cover for transportation.
- An adequate tool kit for preventative and corrective maintenance.





## Maintenance of Chainsaws

- Saws should be properly maintained in accordance with manufacturer's recommendations.
- Chainsaws should be inspected regularly by a competent person. Check the saw periodically throughout the day.
- Special attention should be paid to chain sharpening and chain tension as otherwise chain breakage can occur possibly leading to a serious injury.

## Training in Safe Use of the Chainsaw

If used incorrectly the chainsaw is one of the most dangerous pieces of equipment to use. Due to the hazardous nature of working with chainsaws it is recommended that persons receive appropriate training from a competent training provider. Alternatively, a competent person should be contracted to complete the work.

## Personal Protective Equipment

Using chainsaws exposes operators to high levels of noise and hand-arm vibration which can lead to hearing loss and conditions such as vibration white finger. It is very important that suitable protective clothing and equipment should be worn when using a chainsaw, no matter how small the job. Modern personal protective equipment (PPE) is easy to wear, long lasting and could prevent death or serious injury. However PPE cannot provide complete protection against cuts from chainsaws.

***The following safety equipment should be available and used:***

- Safety Helmet (to conform to EN 397), suitable eye protection (Visor to EN 1731 or safety glasses to EN 166) and ear defenders (EN 352).

- Chainsaw gloves with protective pad on the back of the left hand, leg protection incorporating clogging material (EN 381-7).
- Safety boots with steel toecaps and a good grip (EN 381/345).
- Non-snag close-fitting outer clothing.
- Chainsaw trousers (EN 381-5).
- First aid kit (including large wound dressing).

## Chainsaw Kickback

Kickback occurs when the tip of the guide bar comes into contact with a solid object (such as a log or branch) at the upper tip of the guide bar. It is responsible for a significant proportion of chainsaw accidents.





Great care must be taken to avoid this area of the chainsaw touching any object or obstruction. Kickback results in the guide bar of the chainsaw suddenly moving violently upward. It can cause severe lacerations to the head, face, neck, shoulder and arms.

***To avoid kickback:***

- Hold the saw firmly using both hands, the thumb of the left hand should be under the handle.
- Stand firmly and do not over-reach.
- Never cut above shoulder height.
- The left arm should be straight before cutting; this will help to divert the saw over one's body in the event of kickback.
- Never begin cutting with the upper half of the nose of the blade. Watch out for branches, logs or other material that could come into contact with the guide bar while cutting.
- Never run the engine slowly at the start or during cutting as this can lead to kickback. Cut only on full power.
- Ensure that proper chainsaw maintenance is carried out.

## Starting the Chainsaw

- **From Cold:** Place the chainsaw on level ground. Put one foot on the rear handle plate and the left hand on the front handle. Pull the starter cord firmly.
- **From Hot:** Use the same method as for cold start but without using the choke or the half throttle stop controls. Alternatively grip the rear handle firmly between the knees and grip the front handle with the left hand. Pull the starter cord firmly.

## Risk Assessment

Always carry out a risk assessment before commencing work with a chainsaw.

Refer to the Farm Safety Code of Practice Risk Assessment document for further information.

### ***The Risk Assessment should contain:***

- Identified hazards – check the complete worksite to identify potential hazards.

***For example: Potential hang ups, overhead power lines, and children.***

- Evaluated risks – the risk should be assessed.

***For example: Children in the area are high risk.***

- Safety Control measures - should be implemented before work commences.

***For example: Children to stay out of exclusion zone.***

- All involved with the work must comply with the controls identified.

Emergency procedures should also be in place. For example: mobile phone with pre-loaded numbers, first-aid kits etc

The Risk assessment must be communicated to all persons involved in the work.

## Felling timber

This section deals with basic tree felling using a chainsaw. It does not deal with exceptional or difficult situations or the felling of large trees where specialist advice and competence will be required.

Before felling any tree, make sure that you have the necessary competence to complete the task safely. You will need good judgement and quick reactions to use a chainsaw safely.

- When felling a tree consider factors such as the wind, the natural lean of the tree, location of large limbs, and whether the trunk is sound, hollow or partially rotted. Watch for the presence of dead limbs overhead and for the presence of overhead power lines in the vicinity.
- Plan the work to minimise manual handling.
- Before felling a tree, decide on its direction of fall and select a suitable escape route to the rear and diagonal to the line of fall of a tree. The area directly behind the tree is also a danger zone because the tree may bounce or slide back when it hits the ground. The escape route should always be kept clear of obstructions.
- Felling is a one person operation.
- Ensure that any bystanders are at a safe distance for the tree felling operation. Persons in the vicinity should be at least two tree lengths away from the person operating the chainsaw.
- Clear any undergrowth likely to interfere with the operator and the chainsaw and remove any dead material that could catch fire.
- Make sure your foothold is secure and free from any obstruction. If working on sloping ground work from an uphill position.
- Hold the saw firmly with both hands.
- Make sure you have the necessary equipment close to hand in case it is needed during the felling work. Such equipment would include a breaker bar, alloy or plastic wedges and a sledgehammer.
- If a tree is likely to become hung-up on another tree during felling, you will need to have the competence and the equipment to bring the hung-up tree down safely. Seek expert help if necessary.

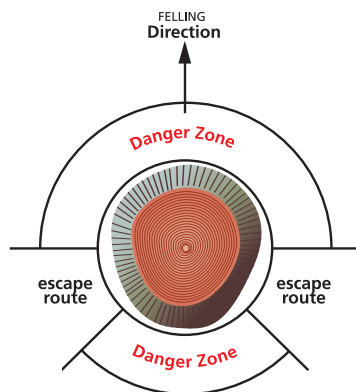
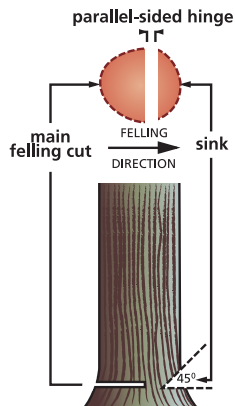


Figure 2 – Escape Routes  
(Source: AFAG 302 leaflet)

- Lopping branches off trees and working on ditches is extremely dangerous. The Chainsaw operator may be tempted to work in dangerous positions and to use the saw above shoulder height. Therefore this type of work should only be carried out by a skilled and competent operator.

When felling a tree *less than the diameter of the guide bar*:

- Cut a notch one-third of the diameter of the trunk at a right angle to the fall. The back cut (main felling cut) should be at least 25 mm higher than the notch and leave a hinge of uncut wood to guide the tree and control the rate and direction of fall.
- The **hinge** must have the same thickness from end to end to direct the fall at right angles to the notch.
- If there is any chance that the tree might not fall-over in the desired direction or may rock back and bind the saw stop cutting before the back cut is completed and switch off the engine.
- Use a wooden, plastic or aluminum wedges (never hard metal) to open the cut and tilt the tree in the desired direction of fall. Never cut through the hinge.



**Figure 3: Felling cuts**  
(Source: AFAG 302 leaflet)

- Once a felling cut has been started on a tree the tree must not be left standing.
- When the tree begins to fall, step back and to the side into the escape route. Look out for falling branches and tops.
- Beware of branches under tension and watch out for them springing back. When a branch is in tension, when cut the timber could spring and cause injury or death.
- When lopping make a preliminary cut underneath the branch and then complete the cut from the top.
- Never stand astride a felled tree when cutting off the branches. If the tree is lying across a slope never stand on the lower side if there is any risk of it rolling.
- When cutting lengths of timber, for example cutting firewood, ensure that the timber is securely supported at about waist height to allow room for the blade to cut.
- When cross cutting make sure no-one comes closer than five metres or within twice the length of the longest piece of timber.

- Trees with diameters *greater than the diameter of the guide bar* should only be felled by persons properly trained in the safe procedures for this type of operation.

## Circular Saws

Circular saws are potentially very dangerous machines. Fixed bench saws are multi-purpose machines used for ripping timber, pointing stakes and cross cutting pieces of timber which have at least one flat surface. Using this type of saw for cross cutting firewood may be dangerous.

- Always use a push-stick or log grippers.
- Make sure all saw guards, including the riving knife, are in place. Adjust guards as close as possible to the work.
- Regularly examine blades for cracks or missing teeth.
- Check that the blade will run at the correct speed, and that it is still sharp and correctly tensioned.
- Ensure the saw bench is at a correct height, securely anchored, protected against the weather, and that you can disconnect the drive or power effectively.
- Always keep the circular saw in good working order.



## Forestry Code of Practice

This Code of Practice for Managing Safety and Health in Forestry Operations provides guidance on the legal duties of all parties involved in forestry operations. If allowing a contractor to carry out forestry operations on your lands it is important to consult this Code of Practice. The code sets out the following four management roles related to forestry operations.

- The Landowner Role
- The Forestry Work Manager Role
- The Contractor Role
- The Sub- contractor Role

By identifying these roles in a particular situation, health and safety communications and operational duties related to health and safety can be clarified. This Code of practice can be obtained from the Health and Safety Authority (downloaded from Publications at [www.hsa.ie](http://www.hsa.ie)).

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