

08 ASSISTED FELLING



Use of this worksheet

This worksheet is part of a series of interactive worksheets that has been produced in association with Husqvarna to support the delivery of training for the City & Guilds (NPTC) suite of chainsaw qualifications.

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Content

This worksheet covers the following outcomes:

Be able to carry out assisted fell operations

Understand how to carry out assisted fell operations

Inspection and recognition of defects in the pulling components

Methods of inspection

It is vital that the equipment is inspected very carefully before it is used to ensure that it is safe for use and that there is no likelihood of its failing. The inspection of components may include:

- a visual inspection to look for obvious signs
- a tactile inspection to feel for imperfections or flaws; or
- other means such as x-ray to check for metal fatigue.

Defects

The defects that are likely to occur depend primarily on what the components are manufactured from, and how they are used or abused! They may include any of the following:

- frays
- cuts / abrasions
- corrosion
- deformities
- Non-functioning components.

Examine each of the following pictures and describe how you think the defect may have been caused.

Picture	Possible cause
	Frays:

Picture	Possible cause
	<p>Cuts/abrasions:</p>
	<p>Corrosion:</p>
	<p>Deformities:</p>
	<p>Non functioning components:</p>

Selecting a felling direction appropriate to the tree form and site conditions



The felling direction must be appropriate to the tree form and its site conditions and take into account the following factors (**fill in the missing words**):

- tree _____
- _____ conditions and considerations
- _____ and obstacles
- _____ available to use.

How to determine the appropriate equipment for the assisted fell of a range of tree types/weights

Selecting the right direction of fell, the right felling tool and method is crucial for a successful outcome, and the margins for error are smaller than when felling normally. There are a number of important factors to consider when determining the appropriate equipment for the assisted fell of a range of tree types and weights. These include:

- the size of the tree
- the shape and form of the tree
- competence of the operator
- availability of the right type of equipment
- the terrain

- site conditions.

Examine each of the following pictures and explain why the correct choice of equipment has been made.

Picture	Explanation for the choice
	
	
	

Picture	Explanation for the choice
	
	

The application and limitations of different types of pulling equipment

A felling aid must push the felling cut apart before the tree falls of its own accord, whereas other types of felling tools/equipment must be able to provide the power (push or pull) needed to make the tree fall.

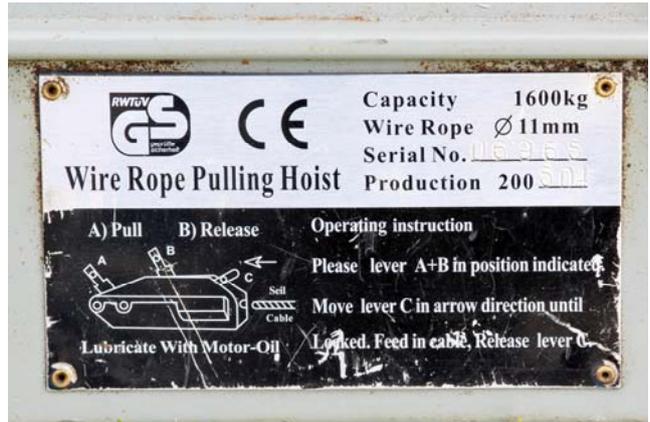
On pages 16 and 17 of Husqvarna's *Working with Chainsaws - Advanced manual for safe and efficient chainsaw use – part 2* there are very useful diagrams and explanations of these important factors.

Pulling systems may include:

- **rope based:** these can be used for assisted felling, but it is easy to exceed the safe working load and ropes are very susceptible to damage.
- **winch based:** used for winching, these are cumbersome to move around and handle, but less susceptible to overloading and damage.



Above rope showing safe working load



Right; winch set up and rating plate

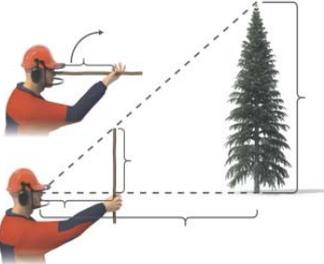
Estimating the load and the factors to consider

When planning the felling of a tree, you need to consider :

- the tree-related factors, including the tree species, habit, height, diameter and the lean of the tree;
- the site conditions, which include the wind direction and speed, and the distance to surrounding trees, buildings, overhead wires, roads and other obstacles.

Describe the activities being carried out in the following images.

Image	Description of the activity

Image	Description of the activity
 <p>The diagram illustrates the assisted fell technique. It shows two workers in orange safety gear. The top worker is positioned to the left of a tree, aiming a cable saw at the top of the tree. The bottom worker is positioned further to the left, aiming a cable saw at the base of the tree. Dashed lines represent the intended cut paths, showing how the cable saws are used to create a controlled fall path for the tree.</p>	
 <p>A photograph showing a tall, thin tree in a forest. A person's arm and part of their body are visible in the foreground, reaching towards the tree, likely demonstrating the assisted fell technique.</p>	

The possible consequences of not carrying out an assisted fell in an organised and appropriate manner

The consequences of not carrying out an assisted fell in an organised and appropriate manner may include:

- **injury to the operator or third parties**
- **damage to property / structure**
- **damage to equipment**
- **damage to the environment**
- **possible financial loss.**



How to set up an assisted fell pulling system which is adequate for the anticipated load of the tree

For the assisted felling operation in the picture below, explain how you would set up the pulling system to ensure that it was adequate for the anticipated load of the tree.

Picture	Explanation
	

The necessity for offset pulling

Offset pulling is often used:

- when working on sloping ground
- so that the operator can be in a safe position (outside the “triangle of death”)
- so that pulling power is increased.

The importance of clear communication

When there are number of operatives working on a site, there is a need for clear communication.

Provide three reasons in the box below.

Reasons include:

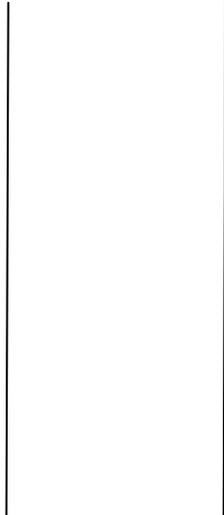
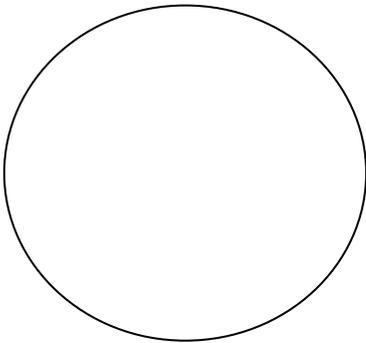
- 1.
- 2.
- 3.

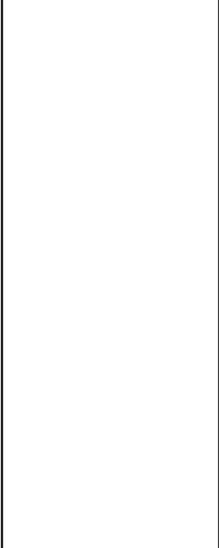
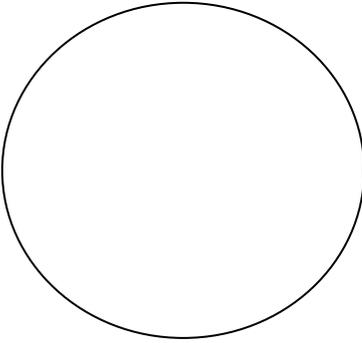
The need for accurate felling direction and the importance of employing appropriate felling techniques / cuts

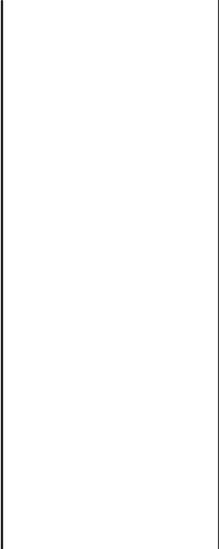
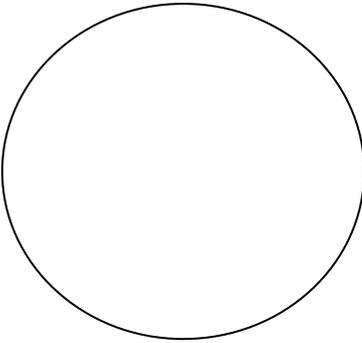
The main reason why felling directional cuts must be accurate is to ensure that the tree falls in the intended direction, thus preventing accidents and accidental damage.

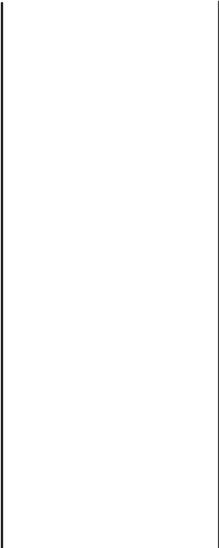
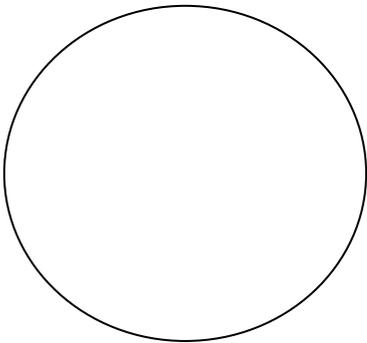
In order to achieve this, the felling cuts employed need to be appropriate, accurate and carried out efficiently. The cuts will vary depending on the size of tree and how it is weighted or leans.

In the boxes below, draw the cuts that need to be made (as applicable) onto the images.

Tree	Stump	Cut
		

Tree	Stump	Cut
		

Tree	Stump	Cut
		

Tree	Stump	Cut
		

The reasons for incorporating a backhold into the felling cut

Fill in the missing word

- _____ the risk of _____ the saw or early release
- gives the operator _____ to fell the tree
- re -evaluate _____ if required
- gives time for the _____ rope to be _____

Notes

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