

FACT SHEET

MACHINE-ASSISTED FELLING USING A GRAPPLE

This fact sheet offers guidance on good practice when performing machine-assisted tree felling using a grapple.

MACHINE SUITABILITY

Before trying machine-assisted felling, it is important to confirm it is appropriate for the area to be felled. Some slopes are too steep for machine-assisted felling, unless the machine is specifically designed for that terrain, and anchored adequately. Factors to consider include the size, lean, and type of trees in the stand, and the environmental conditions. The work method which best ensures the safety of workers should be used.

When it is confirmed that machine-assist is appropriate, the machine itself must be adequate to the task. Machines with a grapple used to assist felling should be:

- > of adequate size. WorkSafe recommends a minimum of 20 tonnes in weight
- > appropriate to the terrain
- > fitted with hose burst protection, where a faller will be working close by
- > fitted with certified protective structures; OPS, ROPS, FOPS, COPS, and side intrusion guarding.



DEVELOPING A SYSTEM FOR MACHINE-ASSISTED FELLING

Before commencing machine-assisted felling, a system must be developed to manage this type of felling. It must address the risks specifically associated with machine-assisted felling. These risks must be identified and assessed, and effective controls implemented to ensure the safety of all workers.

The system should be documented and involve the power line owners, the road owners, forest owner, forest management, crew manager, machine operators, and tree fallers.

The system should include:

- > plant management, including regular checking and maintenance by competent persons

- > worker competency, including training and assessment
- > communication systems to be used
- > standard operating procedures, including detailed descriptions of the machines and safe work methods used
- > assessment of the area to be felled, including:
 - proximity to power lines, roads, rail, and walking tracks
 - slope and soil conditions, and how they affect the ability of the machine to move and apply force to the trees requiring machine assistance
 - stand characteristics, including wind or snow damage, overhead hazards, vines, and undergrowth
 - environmental conditions, including prevailing and expected weather like wind and rain.

The system's effectiveness should be reviewed daily for as long as machine-assisted tree felling is used.

INDIVIDUAL TREE FELLING PLAN

The machine operator and tree faller should assess each tree to be felled, and plan their approach accordingly. This means assessing tree characteristics, including:

- > size
- > lean
- > double or multi leaders
- > overhead hazard
- > undergrowth.

The machine operator and tree faller should discuss these factors and agree on:

- > the appropriate felling method and direction
- > how to position the machine
- > the escape route to be used.

The escape route should extend at least five metres when felling with machine-assist.

COMMUNICATION SYSTEM

Clear and effective communication is essential when workers are engaged in machine-assisted tree felling operations. Radio communication is strongly recommended. Using hand signals is often unclear and is less precise.

If the communication system in use is not effective, machine-assisted tree felling operations should not be conducted.

SAFE WORK PRACTICE

While the felling approach for each tree should be decided together, the tree faller controls the operation. Machine operators are responsible for machine stability and control.

The tree faller should:

- > check that all equipment is fit for use, including personal protective equipment (PPE), first aid kit, chainsaw, wedges, and hammer
- > use the five-step tree felling procedure
- > retreat to a safe position clear of the tree while the grapple is being positioned
- > complete the back cut
- > direct where, when and how much force is applied to the tree
- > retreat to the end of the escape route before signalling the machine operator to push the tree over
- > direct the machine operator to apply force to fell the tree.

Once the scarf is cut, the tree faller can move between the tree and the machine to complete the back cutting. However, the tree faller must never work directly under the raised boom. Back cut or cuts can be made from the side of the tree with the grapple positioned around the tree.

The machine operator should:

- > conduct prestart checks to ensure the machine is suitable and in a safe condition for use
- > follow safe operating practices and procedures
- > ensure the safety and stability of the machine
- > advise the tree faller on the best machine position
- > ensure effective communication is maintained
- > ensure the tree faller is not positioned directly under the raised boom
- > follow direction from the tree faller
- > apply force to the tree when directed.

Machine operators must never apply force to a tree until directed by the tree faller.

PUBLISHED: FEBRUARY 2016. CURRENT UNTIL REVIEW IN 2018.