Title | Fell trees using a mechanised harvesting machine
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**Level** | 4
**Credits** | 20

**Purpose**
This unit standard is intended for people employed in a mechanised tree felling role in a forestry harvesting operation. People credited with this unit standard are able to: demonstrate knowledge of: planning requirements for mechanised tree felling, mechanised harvesting machines, chain shot, and preparation for mechanised felling of trees; and fell trees using a mechanised felling machine.

**Classification**
Forestry > Forest Mechanised Harvesting

**Available grade**
Achieved

**Entry information**

**Critical health and safety prerequisites**
Prerequisites: one of – Unit 6935, *Operate an excavator based tracked machine in a forestry situation*; or Unit 24590, *Operate a self-levelling machine in a forestry situation*.

**Explanatory notes**
Definitions  
*Accepted industry practice* – approved codes of practice and standardised procedures accepted by the wider forestry industry as examples of best practice.  
*Job prescription* refers to any written instructions for the operation and may include maps, harvest plans or cut plans.  
*PPE* refers to personal protective equipment and may include but is not limited to high-viz, protective clothing, gloves, face and eye protection, safety helmet, footwear, hearing protection, and safety devices.  
*Worksites procedures* – documented procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, site safety procedures, equipment operating procedures, quality assurance procedures, housekeeping standards, procedures to comply with legislative and local body requirements.

**Outcomes and evidence requirements**

**Outcome 1**
Demonstrate knowledge of planning requirements for mechanised tree felling.
Evidence requirements

1.1 Machine capability is described in accordance with the manufacturer's recommendations.
   Range tree weight, tree size, tree form, slope, ground conditions.

1.2 Planning requirements for work areas are explained in accordance with worksite procedures and accepted industry practice.
   Range may include but is not limited to – hazards, stand assessment, extraction, other operations, other machines, ground conditions, room to manoeuvre, environmental considerations, safety, signs, stockpiles for tree lengths or logs.

1.3 Job prescription requirements for mechanised tree felling are explained.

1.4 Factors that influence the felling plan are explained in accordance with worksite procedures and accepted industry practice.
   Range may include but is not limited to – opening face, terrain, wind, tree lean, tree characteristics, changes in conditions, production requirements, safety, extraction requirements; evidence of eight is required.

Outcome 2

Demonstrate knowledge of mechanised harvesting machines.

Evidence requirements

2.1 Components of the felling head are described by name and function in accordance with manufacturer’s specifications.
   Range cutting mechanism, holding mechanism, rotator mechanism

2.2 Safety features on the mechanised harvesting machine are identified and function explained in accordance with accepted industry practice and manufacturer's specifications.
   Range may include but is not limited to – operator protection structures, seat belts (or other safety restraint), fire systems, handrails, steps, lockout system, warning systems; evidence of seven is required.

Outcome 3

Demonstrate knowledge of chain shot.
Evidence requirements

3.1 Chain shot is defined and common causes of chain shot are described in accordance with accepted industry practice.

3.2 Ways to minimise or control chain shot are described in accordance with accepted industry practice.

Range maintenance, use.

3.3 Precautions put in place to protect the operator and other personnel from chain shot are described in accordance with accepted industry practice.

3.4 Operator responsibilities to protect themselves and others from chain shot are described in accordance with accepted industry practice and worksite procedures.

Range distance, head orientation, maintenance.

Outcome 4

Demonstrate knowledge of mechanised felling techniques.

Evidence requirements

4.1 Machine and felling head positioning is explained in accordance with the manufacturer's recommendations.

Range stability, distance from tree, felling direction, tree damage, head damage, slew power.

4.2 The purpose of clearing around tree base is explained in accordance with the accepted industry practice.

4.3 Methods of felling difficult trees with a mechanised harvesting machine are explained in accordance with accepted industry practice.

Range includes but is not limited to – double or multiple leaders, trees with interlocking branches, uprooted trees, heavy leaners, trees with butt sweep.

4.4 Alternative cutting techniques are described in accordance with accepted industry practice.

Range double cutting, triple cutting, uprooting whole trees.

4.5 Hazards associated with alternative cutting techniques are described in accordance with worksite procedures.

4.6 Soft clamp set-up for drive arms is explained in accordance with the manufacturer’s recommendations.
Outcome 5

Fell trees using a mechanised felling machine.

Evidence requirements

5.1 PPE is worn in accordance with accepted industry practice and worksite procedures.

5.2 Hazards are identified and managed in accordance with accepted industry practice.

5.3 The reason for on-going hazard identification is explained in accordance with accepted industry practice.

5.4 Factors that may change hazards or introduce new hazards are described in accordance with accepted industry practice.

Range weather, terrain, production requirements.

5.5 Area is assessed and starting point selected to suit worksite procedures and job prescription.

Range opening up felling faces, extraction, roads, waterways, boundaries, hazards.

5.6 Terrain is negotiated, and machine and felling head are positioned in accordance with the manufacturer’s recommendations and accepted industry practice.

5.7 Felling equipment is operated in accordance with the manufacturer’s recommendations and accepted industry practice.

Range low stumps, minimal wastage, minimal stem and butt damage, clean cuts.

5.8 Trees are directionally felled to meet worksite procedures.

Range environmental considerations, extraction considerations.

5.9 Trees outside machine capability are identified for alternative felling methods in accordance with accepted industry practice.

5.10 Felled trees are placed or presented for next phase of operation in accordance with machine capability and worksite procedures.

5.11 Machine and tree movement is smooth and controlled in accordance with accepted industry practice.

5.12 Communication is maintained between worksite personnel in accordance with accepted industry practice.
5.13 Trees are felled to minimise wastage and ensure quality requirements of job prescription are met.

Range low stumps, minimal wastage, minimal stem and butt damage, clean cuts.

Planned review date 31 December 2020

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Consent and Moderation Requirements (CMR) reference 0173
This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Please note
Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard
Please contact Competenz at qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.