

Title	Demonstrate knowledge of, and fell trees using a mechanised harvesting machine in a forest harvesting operation		
Level	4	Credits	20

Purpose	<p>This unit standard is intended for people employed in a mechanised tree felling role in a forestry harvesting operation.</p> <p>People credited with this unit standard are able to: demonstrate knowledge of: planning requirements for mechanised tree felling, mechanised harvesting machines, chain shot, and mechanised felling techniques; and fell trees using a mechanised felling machine.</p>
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Classification	Forestry > Forest Mechanised Harvesting
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Available grade	Achieved
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Prerequisites	One of – Unit 6935, <i>Operate an excavator based tracked machine in a forestry operation</i> ; or Unit 24590, <i>Operate a self-levelling machine in a forestry operation</i> ; or demonstrate equivalent knowledge and skills.
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Guidance Information

- 1 Legislation relevant to this unit standard includes the Health and Safety at Work (HSW) Act 2015; the Resource Management (National Environmental Standards for Plantation Forestry) Amendment Regulations 2018; and any subsequent amendments.
- 2 References
Approved Code of Practice (ACOP) for Safety and Health in Forestry Operations, December 2012, available from <https://worksafe.govt.nz/>.
 New Zealand Forest Owners Association, *Forest Practice Guides* (2019), and any subsequent amendments, available from <https://www.nzfoa.org.nz>.
- 3 Before assessment against this unit standard candidates must have demonstrated competency with operation of the machine to be used in the assessment. Competency is as defined in the Approved Code of Practice for Safety and Health in Forest Operations.
- 4 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.

Worksite procedures refer to 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 performance criteria

Outcome 1

Demonstrate knowledge of planning requirements for mechanised tree felling.

Performance criteria

- 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 – hazard identification and risk management, stand assessment, extraction, other operations, other machines, ground conditions, room to manoeuvre, environmental considerations, safety, signs, stockpiles for tree lengths or logs.
- 1.3 Requirements for mechanised tree felling are explained in terms of the job prescription.
- 1.4 Factors that influence the tree 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.

Performance criteria

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.

Performance criteria

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, inspection of chains.

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.

Performance criteria

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 The risks specific to alternative cutting techniques, and methods to control them are described in accordance with worksite procedures.
- Range evidence of four risks and a control method for each is required.

Outcome 5

Fell trees using a mechanised felling machine.

Performance criteria

- 5.1 The risks specific to felling trees using a mechanised felling machine are assessed and controlled in accordance with accepted industry practice.
- 5.2 Risks, machine capability, and operator capability are continually assessed as work progresses in accordance with accepted industry practice.
- 5.3 Area is assessed to suit worksite procedures and job prescription.
- Range may include – opening up felling faces, extraction, roads, waterways, boundaries, hazards and risks.
- 5.4 Terrain is negotiated, and machine and felling head are positioned in accordance with the manufacturer's recommendations and accepted industry practice.
- 5.5 Felling equipment is operated to fell trees with minimal wastage and ensure quality requirements of job prescription are met in accordance with the manufacturer's recommendations and accepted industry practice.
- Range low stumps, minimal stem and butt damage, minimal stem breakage.
- 5.6 Trees are directionally felled to meet worksite procedures.
- Range environmental considerations, extraction considerations.

- 5.7 Trees outside machine capability are identified for alternative felling methods in accordance with accepted industry practice.
- 5.8 Machine and tree movement is smooth and controlled in accordance with accepted industry practice.
- 5.9 Communication is maintained between worksite personnel in accordance with accepted industry practice.

Planned review date	31 December 2028
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	8 November 1996	31 December 2012
Revision	2	19 June 1998	31 December 2012
Review	3	5 December 2000	31 December 2012
Review	4	22 May 2008	31 December 2013
Revision	5	15 September 2011	31 December 2016
Review	6	19 March 2015	31 December 2017
Review	7	10 December 2015	N/A
Review	8	26 March 2020	N/A
Rollover	9	26 April 2024	N/A

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

Comments on this unit standard

Please contact Muka Tangata - People, Food and Fibre Workforce Development Council qualifications@mukatangata.nz if you wish to suggest changes to the content of this unit standard.