

Title	Demonstrate knowledge of forest harvesting operations		
Level	5	Credits	8

Purpose	People credited with this unit standard are able to: explain the objectives of forest harvesting operations; describe the main forest harvesting systems in New Zealand; describe the processes used in common ground-based harvesting systems; describe common cable harvesting systems; explain tree felling operations; explain extraction operations in forestry; explain forest landing operations; and describe post-harvest rehabilitation in forestry.
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Classification	Forestry > Forest Harvesting Operations
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Available grade	Achieved
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Guidance Information

- 1 Definition
Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider forestry industry as examples of best practice.
- 2 References
Colley, M. *Forestry handbook / New Zealand Institute of Forestry Inc.* (4th ed). (2005). Christchurch: New Zealand Institute of Forestry Inc.
McLaren, J.P. *Radiata Pine Growers Manual.* (1993). FRI Bulletin 184. Rotorua, New Zealand: New Zealand Forest Research Institute.
Riddle, A. *Business Management for Logging.* (1994). New Zealand. Rotorua, NZ: Logging Industry Research Organisation, available from Scion, Te Papa Tipu Innovation Park, 49 Sala Street, Private Bag 3020, Rotorua 3046, New Zealand.

Outcomes and performance criteria

Outcome 1

Explain the objectives of forest harvesting operations.

Performance criteria

- 1.1 The objectives of forest harvesting are described in accordance with accepted industry practice.

Range log quality, value recovery, productivity, cost, safety, environmental outcomes.

1.2 The objectives of production thinning in forestry and the ways in which these objectives are achieved are described in accordance with accepted industry practice.

Range silvicultural regime, final crop value, intermediate yield, improved stand health.

1.3 The objectives of road lining operations in forestry are described in accordance with accepted industry practice.

Range location of road line compliant with harvest plan, supporting roading operations.

Outcome 2

Describe the main forest harvesting systems in New Zealand.

Performance criteria

2.1 The main types of forest harvesting systems used in New Zealand are described in accordance with accepted industry practice.

Range wheeled skidder, tracked skidder, tractor, cable hauler, swing yarder, helicopter.

2.2 Forest harvesting systems are compared in accordance with accepted industry practice.

Range topography, ground conditions, environmental impact, haul distance, cycle time, unit cost.

Outcome 3

Describe the processes used in common ground-based harvesting systems.

Range motor manual, mechanised.

Performance criteria

3.1 The processes used in common ground-based harvesting systems, including their capabilities, efficiencies, and limitations are described in accordance with accepted industry practice.

Range felling, breaking out, extraction, processing, loading.

3.2 Operational safety requirements for common ground-based harvesting systems are compared in accordance with accepted industry practice.

3.3 The environmental effects of common ground-based harvesting systems are compared in accordance with accepted industry practice.

Outcome 4

Describe common cable harvesting systems.

Performance criteria

4.1 Cable harvesting system types are described and their capabilities, efficiencies, and limitations are compared in accordance with accepted industry practice.

Range systems include – high lead, standing skyline, gravity feed (shotgun), scab skyline, running skyline.

4.2 The operational safety requirements of cable systems are described in accordance with accepted industry practice.

Outcome 5

Explain tree felling operations.

Performance criteria

5.1 The set-up of a felling operation is described in accordance with accepted industry practice.

Range Personal Protective Equipment, felling equipment, assessment of work area.

5.2 Safe work practices and hazards associated with tree felling operations are described in accordance with accepted industry practice.

Range motor manual, mechanised.

5.3 Basic tree felling procedures are described in accordance with accepted industry practice.

Range motor manual felling, mechanised felling.

5.4 Specialist tree felling procedures are described in accordance with accepted industry practice.

Range windthrow, leaning trees, tree driving.

Outcome 6

Explain extraction operations in forestry.

Performance criteria

6.1 The set-up of an extraction operation plan is explained in accordance with accepted industry practice.

Range one ground-based operation, one cable harvesting operation.

6.2 Safe work practices and hazards associated with extraction operations are described in accordance with accepted industry practice.

6.3 Factors influencing productivity of the extraction operation are described in accordance with the reference texts.

Range number of strops, positioning of strops or grapple, drag selection, number of breaker outs, hook on method, cycle time elements, harvesting prescription standards.

Outcome 7

Explain forest landing operations.

Performance criteria

7.1 Landing layout is described in accordance with accepted industry practice.

Range one ground based landing, one cable landing.

7.2 The safe work practices and hazards associated with landing operations are described in accordance with accepted industry practice.

7.3 Tasks carried out at a landing are described in accordance with accepted industry practice.

Range unhooking, trimming, logmaking, tree processing, fleeting, sort and stack, quality control, loading.

Outcome 8

Describe post-harvest rehabilitation in forestry.

Performance criteria

8.1 The requirements for post-harvest rehabilitation are explained in accordance with accepted industry practice.

8.2 Post-harvest rehabilitation standards are described in accordance with accepted industry practice.

Range water control, slash control.

8.3 Post-harvest monitoring requirements are described in accordance with accepted industry practice.

Replacement information

This unit standard replaced unit standard 1140.

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	16 October 2009	31 December 2017
Review	2	10 December 2015	N/A
Rollover and Revision	3	28 May 2020	N/A
Rollover	4	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.