

Title	Demonstrate knowledge of and plan forestry operations		
Level	5	Credits	8

Purpose	People credited with this unit standard are able to: explain the objectives of forest management; explain job prescriptions for forestry operations; demonstrate knowledge of land preparation; demonstrate knowledge of planting operations; demonstrate knowledge of releasing operations; demonstrate knowledge of fertilising operations; prepare an establishment plan for a site using given data; demonstrate knowledge of and plan silvicultural operations; and describe protection operations for a forest estate.
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Classification	Forestry > Forest Silvicultural Operations
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Available grade	Achieved
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Guidance Information

1 Definitions

Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider forestry industry as examples of best practice.

Worksite 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.

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.

Outcomes and performance criteria

Outcome 1

Explain the objectives of forest management.

Performance criteria

- 1.1 The objectives of forest management are explained in accordance with the reference texts.

- 1.2 Silvicultural regimes used to achieve the objectives are described and compared in accordance with the reference texts.

Outcome 2

Explain job prescriptions for forestry operations.

Performance criteria

- 2.1 Key elements of a job prescription for forestry operations are explained in accordance with accepted industry practice.

- 2.2 The consequences of not meeting the job prescription requirements are explained in accordance with accepted industry practice.

Range quality, timing, area to be treated, safety, environmental requirements.

Outcome 3

Demonstrate knowledge of land preparation.

Performance criteria

- 3.1 The objective of land preparation is described in accordance with accepted industry practice.

- 3.2 The key operational methods of land preparation are described in accordance with accepted industry practice.

Range mechanical, chemical, manual, fire.

- 3.3 The advantages and disadvantages of different land preparation techniques are described in accordance with accepted industry practice.

Range windrow, spot cultivate, v-blade, crush, rip, spray, burn, graze.

Outcome 4

Demonstrate knowledge of planting operations.

Performance criteria

- 4.1 The objectives of tree planting are described in accordance with accepted industry practice.

- 4.2 The impacts of poor planting stock quality are described in accordance with accepted industry practice.

- 4.3 The impacts of poor planting technique are described in accordance with accepted industry practice.

Outcome 5

Demonstrate knowledge of releasing operations.

Performance criteria

- 5.1 The objectives of tree releasing are described in accordance with accepted industry practice.
- 5.2 The factors that impact on the choice of method for releasing plantation trees are described in accordance with accepted industry practice.
- Range chemical release, manual release.
- 5.3 Four common weed species in forests are identified and control for each weed species by manual and chemical methods is described in accordance with the reference texts.

Outcome 6

Demonstrate knowledge of fertilising operations.

Performance criteria

- 6.1 The objectives of fertilising are described in accordance with accepted industry practice.
- 6.2 Aerial and ground-based fertiliser application methods are compared in terms of effectiveness, efficiency and cost.

Outcome 7

Prepare an establishment plan for a site using given data.

Performance criteria

- 7.1 The management objectives for the site are defined in accordance with the reference texts.
- 7.2 The physical characteristics of the site are described by interpreting the given data.
- Range terrain, soils, altitude, aspect, annual rainfall, site history.
- 7.3 Regulatory factors that may impact on the establishment plan are described.
- Range legislation, regional plans, district plans, consents, permits.
- 7.4 On-site features are identified and their management is included in the plan in accordance with the reference texts, and accepted industry practice.
- Range historic and/or cultural, safety, environmental.

- 7.5 Land preparation methods for the site are determined in accordance with the reference texts and accepted industry practice.
- 7.6 The species, stock type, initial stocking and planting technique best suited to the site and management objectives are determined in accordance with the reference texts and accepted industry practice.
- 7.7 Releasing, animal pest control and fertiliser requirements are determined for the site in accordance with the reference texts.
- 7.8 The scheduling of the establishment operations is determined in the establishment plan in accordance with worksite procedures.
- 7.9 Job prescriptions for each operation identified in the establishment plan are prepared in accordance with accepted industry practice.
- 7.10 The costs of the establishment operations identified in the establishment plan are calculated in accordance with reference texts.

Outcome 8

Demonstrate knowledge of and plan silvicultural operations.

Performance criteria

- 8.1 The objectives of, and the regime options available to achieve pruning objectives are described in accordance with accepted industry practice and the reference texts.
- 8.2 The objectives of, and the regime options available to achieve thinning objectives are described in accordance with accepted industry practice and the reference texts.
- 8.3 The tree selection process is described in accordance with accepted industry practice.
- 8.4 Information required for making decisions on the choice of silvicultural regime is identified in accordance with the reference texts.
- 8.5 A computer model is used to determine a silvicultural regime, for a given site using given data.
- 8.6 Job prescriptions for the pruning and thinning operations are prepared in accordance with accepted industry practice.
- 8.7 The impacts of poor selection, pruning or thinning are described in terms of the quality and value of the final tree crop and the impact on subsequent operations.
- 8.8 The costs of the silvicultural operations for the given site are calculated in accordance with the reference texts.

Outcome 9

Describe protection operations for a forest estate.

Performance criteria

9.1 The impact that major events can have on forest estate value is described in accordance with the reference texts.

Range fire, wind, pest, disease, security breach.

9.2 Management systems for protecting forest estate values are described in accordance with the reference texts.

Range fire plan, health surveillance, emergency response plan, forest security.

9.3 Activities used to support protection management systems are identified and described in accordance with accepted industry practice.

Range management systems include – fire plan, health surveillance, emergency response plan, forest security.

Replacement information	This unit standard replaced unit standard 1138.
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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 at 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.