Title	**Describe the characteristics and management of abiotic disorders affecting forest and tree health**		
Level	**5**	**Credits**	**6**

Purpose	People credited with this unit standard are able to: demonstrate knowledge of the occurrence and symptoms of abiotic disorders; identify causative factors of abiotic damage; collect and prepare samples of abiotic damage for dispatch; and demonstrate knowledge of methods used to mitigate abiotic disorders.

Classification	Forestry > Forest Health Surveillance

Available grade	Achieved

Guidance Information

1 The abiotic disorders covered by this unit standard include problems relating to climate, nutrient deficiencies, chemical damage, soil structure, animal damage and damage resulting from human activity.

2 References
Field Guide to Common Pests, Diseases, and other Disorders of Radiata Pine in New Zealand (referred to as the Field Guide in this standard). FRI Bulletin 207, available at http://www.scionresearch.com/.
New Zealand Institute of Forestry. *Forestry Handbook* (referred to as the Handbook in this standard), available at http://www.nzif.org.nz/.
Nutrient Deficiencies and Fertiliser Use in New Zealand Exotic Forests, (1985). FRI Bulletin No. 97, available at http://www.scionresearch.com/.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the occurrence and symptoms of abiotic disorders.

Performance criteria

1.1 Factors that make a geographic area susceptible to abiotic disorders are identified in accordance with the reference text and the Handbook.

Range climatic event, nutrient deficiencies, animal damage, chemical damage, soil structure.

1.2 The differences between abiotic damage and insect and fungal damage are described in accordance with the Field Guide.

1.3 The symptoms of abiotic disorders are described in accordance with the Field Guide.

Range climate, nutrient deficiency, animals, chemicals, soil structure.

Outcome 2

Identify causative factors of abiotic damage.

Performance criteria

2.1 Abiotic damage caused by climate is identified from examples described in the Field Guide.

Range climatic conditions may include – frost, hail, wind, rain, sun, waterlogging, drought, lightning.

2.2 Abiotic damage caused by nutrient deficiency is identified from examples described in the reference text.

Range nutrient deficiencies may include – boron, nitrogen, phosphorus, potassium, magnesium, copper, manganese, zinc.

2.3 Abiotic damage caused by animals is identified from examples described in the Field Guide.

Range animals may include – opossums, pigs, cattle, deer, sheep, goats, hares, rabbits, humans.

2.4 Abiotic damage caused by chemicals is identified from examples described in the Field Guide.

Range chemicals may include – herbicides, fertilisers.

2.5 Abiotic damage caused by soil structure is identified from examples described in the Field Guide.

Range soil structure may include – podsols, pakihi, compaction.

Outcome 3

Collect and prepare samples of abiotic damage for dispatch.

Performance criteria

3.1 Samples required to determine the cause of abiotic disorders are prepared for dispatch according to reference text and the Handbook.

Range foliage, soil, stem, roots.

Outcome 4

Demonstrate knowledge of methods used to mitigate abiotic disorders.

Performance criteria

4.1 Methods used to mitigate damage caused by climate are described in accordance with the Handbook.

Range species selection and siting, site preparation, weed control.

4.2 Methods used to mitigate disorders caused by nutrient deficiency are described in accordance with the reference text.

4.3 Methods used to mitigate damage caused by animals are described in accordance with the Handbook.

Range repellents, eradication, host resistance.

4.4 Methods used to mitigate damage caused by chemicals are described in accordance with the Handbook.

Range selection, use, drift control.

4.5 Methods used to mitigate damage caused by soil structure are described in accordance with the Handbook.

Range species selection and siting, site preparation.

Planned review date	31 December 2028

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 December 1996	31 December 2017
Revision	2	5 January 1999	31 December 2017
Review	3	29 August 2001	31 December 2017
Review	4	17 September 2010	31 December 2017
Review	5	10 December 2015	N/A
Rollover and Revision	6	28 May 2020	N/A
Rollover	7	26 April 2024	N/A

Consent and Moderation Requirements (CMR) reference	0173

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.