

<b>Title</b>	<b>Describe the characteristics and management of forest pathogens</b>		
<b>Level</b>	<b>5</b>	<b>Credits</b>	<b>8</b>

<b>Purpose</b>	People credited with this unit standard are able to: outline the biology of fungi and the pathology of plants; identify the characteristics and management of the most prevalent and/or threatening fungal diseases of forests and trees in New Zealand; identify the characteristics of, and management strategies for, less important fungal diseases of forests and trees; identify the characteristics of examples of fungal diseases not yet in New Zealand that could threaten New Zealand trees; prepare collections for pathological diagnosis; and describe the symbiotic relationship of mycorrhiza and forest trees, and its importance for tree health.
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<b>Classification</b>	Forestry > Forest Health Surveillance
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<b>Available grade</b>	Achieved
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## Guidance Information

### References

*An Introduction to the Diseases of Forest and Amenity trees in New Zealand*; FRI Bulletin 220, available at <https://www.scionresearch.com/>.

*Exotic Pests and Diseases of Pine not wanted in New Zealand* (2003); FRI Bulletin 227, available at <https://www.scionresearch.com/>.

*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/>.

## Outcomes and performance criteria

### Outcome 1

Outline the biology of fungi and the pathology of plants.

### Performance criteria

1.1 The biology of fungi and the broad principles of pathology are described.

Range principles include – disease triangle, Koch's postulate, dispersal mechanisms.

1.2 The major groups of pathogens that cause tree diseases are described.

1.3 The nomenclature of pathogens is described.

## **Outcome 2**

Identify the characteristics and management of the most prevalent and/or threatening fungal diseases of forests and trees in New Zealand.

### **Performance criteria**

- 2.1 Signs and symptoms of major fungal diseases of trees are identified in accordance with the reference text and the Field Guide.
- 2.2 The types and extent of damage caused by major diseases are recognised in accordance with the reference text and the Field Guide.
- 2.3 The hosts of the major pathogens are named in accordance with the reference text and the Field Guide.
- 2.4 Management strategies used for each major disease are described in accordance with the reference text and the Handbook.

## **Outcome 3**

Identify the characteristics of, and management strategies for, less important fungal diseases of forests and trees.

### **Performance criteria**

- 3.1 Signs and symptoms of minor fungal diseases of trees are identified in accordance with the reference text and the Field Guide.
- 3.2 The types and extent of damage caused by each disease are identified in accordance with the reference text and the Field Guide.
- 3.3 The hosts of less important pathogens are named in accordance with the reference text and the Field Guide.
- 3.4 Management strategies used for each disease are described in accordance with the reference text and the Handbook.

## **Outcome 4**

Identify the characteristics of examples of fungal diseases not yet in New Zealand that could threaten New Zealand trees.

### **Performance criteria**

- 4.1 Examples of disease symptoms are identified in accordance with the reference text.

4.2 The damage caused by each type of disease is identified in accordance with the reference text.

4.3 Countries from which each disease could enter New Zealand are identified in accordance with the reference text.

**Outcome 5**

Prepare collections for pathological diagnosis.

**Performance criteria**

5.1 Specimens are prepared for dispatch according to the type of specimen in accordance with the reference text and the Handbook.

Range fungal fruiting bodies, suspected diseased materials.

5.2 Collection forms and health inspection forms are completed for inclusion with the collection in accordance with the reference text and the Handbook.

**Outcome 6**

Describe the symbiotic relationship of mycorrhiza and forest trees, and its importance for tree health.

**Performance criteria**

6.1 The characteristics of the two types of mycorrhiza of importance to New Zealand plantation forestry are described in accordance with the reference text.

6.2 The symbiotic relationship of mycorrhiza and forest trees is described in relation to the fungi’s ability to enhance the trees’ uptake of nutrients in accordance with the reference text.

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<b>Planned review date</b>	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	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](mailto:qualifications@mukatangata.nz) if you wish to suggest changes to the content of this unit standard.