

Title	Demonstrate knowledge of soils and fertilisers		
Level	2	Credits	5

Purpose	<p>This unit standard is for people requiring knowledge of soils and fertilisers in a primary sector context.</p> <p>People credited with this unit standard are able to: describe the composition of soil; demonstrate knowledge of soil aggregates, soil texture and soil structure; describe soils using the New Zealand Soil Classification; and describe the role of fertiliser for plant health and growth.</p>
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Classification	Primary Sector > Primary Sector Core Skills
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Available grade	Achieved
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Guidance information

The New Zealand Soil Classification is used in this unit standard as the basis for describing soils in New Zealand. Information on the New Zealand Soil Classification is available at <http://soils.landcareresearch.co.nz>.

Outcomes and performance criteria

Outcome 1

Describe the composition of soil.

Performance criteria

1.1 Describe major components of soil in terms of their composition, relative size, and proportions.

Range mineral particles, organic material, water, air.

1.2 Describe major components of soils with reference to their influence on plant growth.

Range mineral particles, organic material, water, air.

1.3 Describe main soil horizons in terms of their composition.

Range litter layer, topsoil, subsoil, parent material.

Outcome 2

Demonstrate knowledge of soil aggregates, soil texture and soil structure.

Performance criteria

2.1 Describe soil aggregates in terms of their effects on plant growth.

Range aggregates – crumb, block, platy, fine;
descriptions must include appearance and size.

2.2 Identify major soil textural types by feel and sight.

Range sand, sandy loam, silt loam, clay loam, clay.

2.3 Describe soil structure in terms of its effect on plant growth.

Outcome 3

Describe soils using the New Zealand Soil Classification.

Range may include but are not limited to – volcanic loams, brown earths, coastal sands, organic soils, podzols, pumice soils, brown clays, recent alluvial soils; evidence for two soils is required.

Performance criteria

3.1 Describe characteristics of the soils and compare according to their use.

Range drainage, parent material, structure, nutrient deficiencies, texture, potential for plant growth.

3.2 Describe soils in terms of how they are formed.

3.3 Describe soils according to their location and use in New Zealand.

Outcome 4

Describe the role of fertiliser for plant health and growth.

Performance criteria

4.1 Describe macronutrients and micronutrients in terms of how they affect plant growth.

4.2 Describe fertilisers and lime in terms of how they influence plant growth.

Range lime, nitrogenous, phosphatic and potassic fertilisers.

4.3 Describe the tests that can be used to determine soil nutrient status and soil pH.

Range soil testing, leaf analysis.

- 4.4 Describe the presence of soil and plant deficiencies and toxicities using plant symptom examples.

Replacement information	This unit standard and unit standard 22175 replaced unit standard 14, unit standard 33, unit standard 34, and unit standard 35.
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Planned review date	31 December 2023
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	25 July 2006	31 December 2020
Review	2	28 February 2019	N/A

Consent and Moderation Requirements (CMR) reference	0232
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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 the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.