

# **ASSESSMENT GUIDELINES**

## **Unit 22174**

**Demonstrate knowledge of soils and fertilisers**

Level 2, Credit 5, Version 1

# Demonstrate knowledge of soils and fertilisers

## Unit standard 22174

Level 2, Credit 5, Version 1

### Level of performance required for this unit standard

This is a level 2 unit standard. At this level trainees are expected to demonstrate the following abilities when completing assessment tasks:

- To work under general supervision, as directed; with some responsibility for the standard of the outcome achieved.
- To complete tasks that are established and familiar, with a moderate range of skill and knowledge.
- To apply basic operational knowledge, use readily available information and known solutions to solve familiar problems.

### Workplace assessment:

For guidelines on Workplace Assessment, please refer to the NZHITO Workplace Assessors Manual, and for further information, please contact: NZHITO, P O Box 8638, Christchurch. Ph 03 9644 735, fax 03 9644 737, website [www.hortito.org.nz](http://www.hortito.org.nz)

### Special notes:

- 1 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>.
- 2 Recommended reading for this unit standard includes: Molloy, L *Soils in the New Zealand Landscape - The Living Mantle, 2nd Edition* (New Zealand Society of Soil Science, 1998) available at <http://www.mwpress.co.nz>.

**Unit 22174: Demonstrate knowledge of soils and fertilisers  
(Apprentice copy)**

<b>ELEMENT</b>	<b>Competent</b>	<b>Range of evidence an assessor should consider</b>
<b>Element 1</b> Describe the composition of soil	<b>Yes/No</b>	<ul style="list-style-type: none"> <li>▪ Define the major components of soil in terms of composition, relative size, and proportions. Range: mineral particles, organic material, water, air.</li> <li>▪ Discuss the major components of soil with reference to their influence on plant growth. Range: mineral particles, organic material, water, air.</li> <li>▪ Outline the main soil horizons in terms of their composition. Range: litter layer, topsoil, subsoil, parent material.</li> </ul>
<b>Element 2</b> Identify soil texture and structure	<b>Yes/No</b>	<ul style="list-style-type: none"> <li>▪ Describe soil aggregates in terms of their effects on plant growth. Range – aggregates, crumb, block, platy, fine; descriptions must include appearance and size.</li> <li>▪ Identify major soil textural types by feel and sight. Range: sand, sandy loam, silt loam, clay loam, clay.</li> <li>▪ Describe soil structure in terms of its affect on plant growth.</li> <li>▪</li> </ul>
<b>Element 3</b> Describe two soils using the New Zealand Soil Classification. Range: may include but not limited to – volcanic loams, brown earths, coastal sands, organic soils, podzols, pumice soils, brown clays, and recent alluvial soils.	<b>Yes/No</b>	<ul style="list-style-type: none"> <li>▪ Describe the characteristics of the soils selected and compare them according to their use. Range: drainage, parent material, structure, nutrient deficiencies, texture, potential for plant growth.</li> <li>▪ Describe the selected soils in terms of how they are formed.</li> <li>▪ Identify the selected soils in terms of their location and use in New Zealand.</li> </ul>
<b>Element 4</b> Describe the role of fertiliser for plant health and growth	<b>Yes/No</b>	<ul style="list-style-type: none"> <li>▪ Define micronutrients and macronutrients in terms of the how they affect plant growth.</li> <li>▪ Identify fertilizers and lime in terms of how they influence plant growth. Range: lime, nitrogenous, phosphatic and potassic fertilisers</li> <li>▪ Discuss fertilisers and lime in terms of how they can be altered to affect plant growth. Range: soil testing, leaf analysis, monitoring of fertiliser applications, soil and plant deficiencies and toxicities.</li> </ul>

\_\_\_\_\_  
*(Name of Apprentice)*

is **Competent / Not yet competent** in Unit Standard 22174, version 1

**Signed (Assessor):** \_\_\_\_\_

WPA Registration Number: \_\_\_\_\_ Date: \_\_\_\_\_

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<b>Element 2</b> Identify soil texture and structure	<b>Yes/No</b>	<ul style="list-style-type: none"> <li>▪ Describe soil aggregates in terms of their effects on plant growth. Range – aggregates, crumb, block, platy, fine; descriptions must include appearance and size.</li> <li>▪ Identify major soil textural types by feel and sight. Range: sand, sandy loam, silt loam, clay loam, clay.</li> <li>▪ Describe soil structure in terms of its affect on plant growth.</li> <li>▪</li> </ul>
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<b>Element 4</b> Describe the role of fertiliser for plant health and growth	<b>Yes/No</b>	<ul style="list-style-type: none"> <li>▪ Define micronutrients and macronutrients in terms of the how they affect plant growth.</li> <li>▪ Identify fertilizers and lime in terms of how they influence plant growth. Range: lime, nitrogenous, phosphatic and potassic fertilisers</li> <li>▪ Discuss fertilisers and lime in terms of how they can be altered to affect plant growth. Range: soil testing, leaf analysis, monitoring of fertiliser applications, soil and plant deficiencies and toxicities.</li> </ul>

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Please send this page to your NZHITO Regional Manager, who will forward it to National Office to register the credits on your NZQA Record of Learning.

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*(Name of Apprentice)*

**is Competent in Unit Standard 22174. (version 1)**

**Signed (Assessor):**

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WPA Registration Number: \_\_\_\_\_

Date: \_\_\_\_\_