



Australian Government

Department of Education, Employment and Workplace Relations

RTF2504A Determine basic properties of soil/growing media

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of determining the basic properties of soil or soil-less growing media. It requires the ability to collect samples and perform basic tests. It requires knowledge of sample collection techniques, basic soil/growing media properties, and basic understanding of soil/plant relationships. Determining the basic properties of soil or soil-less growing media is likely to be under supervision from others, with checking related to overall progress. The work is usually done within routines, methods and procedures where some discretion and judgement is required in the selection of equipment and materials, organisation of work, and the achievement of outcomes within time and budgetary constraints.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Collect soil/media samples for testing	<p>1.1 Tools and materials for collecting soil/media samples are prepared.</p> <p>1.2 Area from which soil/media samples are to be collected is identified from workplace records or supervisors instructions.</p> <p>1.3 Services are located using site plans and in consultation with the supervisor.</p> <p>1.4 OHS hazards are identified, risks assessed and controls implemented and reported to the supervisor.</p> <p>1.5 Suitable safety equipment and personal protective equipment (PPE) are selected, used and maintained.</p> <p>1.6 Samples are taken randomly from the designated area according to recognised sampling techniques and are prepared for on site or off site analysis</p> <p>1.7 Samples are labelled and recorded according to organisational procedures.</p>
2 Perform basic soil/media tests	<p>2.1 Soil profile is determined, where appropriate.</p> <p>2.2 Soils/media are tested or inspected for physical properties.</p> <p>2.3 Soils/media is tested for chemical properties .</p> <p>2.4 Results are recorded according to organisational procedures.</p>

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole?

Competence in determining basic properties of soils/media requires evidence that sampling, testing, interpreting and recording techniques have been successfully and appropriately carried out. The skills and knowledge required to determine the basic properties of soils/media must be **transferable** to a range of work environments and contexts. For example, this could include different soil/media types tested for different properties for a range of crops or plants.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts, and to deal with unplanned events. The knowledge requirements for this unit are listed below:

1. soil sampling techniques
2. soil/media physical properties
3. soil/media chemical properties
4. soil/media plant relationships
5. basic soil/media field tests
6. interpreting laboratory results
7. techniques to ameliorate soil properties.

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

8. collect soil/media samples
9. perform basic soil/media tests
10. interpret results from own or laboratory results
11. record and store information.

What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

1. How can **communication of ideas and information (1)** be applied? Through reporting results of soil/media tests to supervisor or others orally or in writing.
2. How can **information be collected, analysed and organised (2)**? Through recording, interpreting and filing soil/media results.
3. How are **activities planned and organised (2)**? According to workplace procedures.
4. How can **team work (1)** be applied? Through working with other to achieve an outcome.
5. How can the use of **mathematical ideas and techniques (2)** be applied? Through the use of accepted soil/media tests and by carrying out the required number of samples from a designated area and in a manner that is random across the designated area.
6. How can **problem-solving skills (2)** be applied? Through identifying and resolving problems with the sampling process.
7. How can the **use of technology (2)** be applied? Through the use of standard soil/media testing equipment.

Are there other competency standards that could be assessed with this one?

This competency standard **could** be assessed on its own or in combination with other competencies relevant to the job function.

There is essential information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, in the Assessment Guidelines for this Training Package. All users of these competency standards must have **access** to the **Assessment Guidelines**. Further advice may also be sought from the relevant **sector booklet**.

Range Statement

Range of Variables

The Range of Variables explains the contexts within which the performance and knowledge requirements of this standard may be assessed. The scope of variables chosen in training and assessment requirements may depend on the work situations available

What **tools and equipment** may be relevant to this standard? Tools and equipment include spades, augers, soil/media sample storing and recording materials, field test kits and interpreting charts.

What **services** may need to be located? Services may include water supply, gas, electricity, telecommunications, irrigation, stormwater and drainage.

What **OHS hazards** may be associated with performing a soil survey? Hazards may include disturbance or interruption of services, solar radiation, dust, noise, soil- and water-borne micro-organisms, chemicals and hazardous substances, sharp hand tools and equipment, manual handling, moving machinery and machinery parts, falling objects, and uneven surfaces.

What **PPE** may be required to perform a soil survey? PPE may include hat, boots, overalls, gloves, goggles, respirator or face mask, face guard, hearing protection, sunscreen lotion and hard hat.

What activities may be included in **sampling**? Sampling activities may include collecting, preparing, packaging and labelling soil samples for off-site testing and/or on-site testing and analysis.

What **tests** may be performed? Soils/media may be tested for depth, colour, texture, structure, compaction, air-filled porosity, pH, salinity and nutrients.

For more information on contexts, environment and variables for training and assessment refer to the Sector Booklet.

Unit Sector(s)

Not applicable.