



Australian Government

AHCSOL304 Implement soil improvements for garden and turf areas

Release: 1

AHCSOL304 Implement soil improvements for garden and turf areas

Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 4.0.

Application

This unit of competency describes the skills and knowledge required to collect and test soil samples for their physical and chemical characteristics and take corrective action to improve the soil for garden beds and turf areas.

The unit applies to individuals who carry out soil improvements under general direction and take responsibility for their own work. They use discretion and judgement in the selection, allocation and use of available resources and for solving problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Soil (SOL)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare and collect soil samples for testing	1.1 Identify purpose and method of soil sampling and testing 1.2 Select tools, equipment and materials required for safely collecting soil samples according to testing procedures 1.3 Collect representative soil samples for testing 1.4 Package and label soil samples ready for testing according to

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	laboratory procedures
2. Determine physical characteristics of sample	2.1 Conduct tests to determine the physical characteristics of soils according to laboratory procedures and safe work practices 2.2 Identify depth of topsoil and assess suitability for cultural requirements of plants to be grown 2.3 Assess soil physical characteristic test results to determine drainage and water holding performance 2.4 Identify and select soil improvements required to meet cultural requirements of plants to be grown 2.5 Prepare a soil improvement plan for improving physical characteristics
3. Determine chemical characteristics of sample	3.1 Conduct tests to determine chemical properties of soil according to laboratory procedures and safe work practices 3.2 Assess soil chemical properties test results to determine effect on cultural requirements of plants to be grown 3.3 Identify and select soil chemical improvements required to meet cultural requirements of plants to be grown 3.4 Update soil improvement plan for improving chemical characteristics
4. Prepare soils for planting or replanting	4.1 Select tools, equipment and materials required to safely incorporate soil treatments according to soil improvement plan 4.2 Calibrate equipment to ensure application of soil improvement material complies with improvement plan 4.3 Implement soil improvement plan for garden and turf areas 4.4 Adjust soil levels and consolidate ready for planting 4.5 Record and report work outcomes according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Writing	Complete workplace documentation accurately and clearly using industry terminology, correct spelling and required format
Numeracy	- Perform weight and volumetric measurements when preparing and assessing soil tests - Calculate soil improvement materials to include in the soil improvement plan, including distance, area, volume and ratio

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCSOL304 Implement soil improvements for garden and turf areas	AHCSOL303 Implement soil improvements for garden and turf areas	Performance criteria clarified Foundation skills added Performance evidence, knowledge evidence and assessment conditions expanded	Equivalent unit

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCSOL304 Implement soil improvements for garden and turf areas

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Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has collected soil samples, including:

- determined the purpose for collecting and testing soil samples
- collected representative soil samples for testing and packaged and labelled them according to workplace and laboratory requirements
- collected samples of at least three different soil types, and:
 - conducted tests safely to determine soil physical and chemical properties according to industry standards
 - assessed test results and prepared soil improvement plan to meet the requirements and conditions required for the plant species to be cultivated.

There must also be evidence that, on at least one occasion, the individual has, according to workplace procedures:

- selected tools, materials and equipment required for implementing soil improvement plan
- calibrated equipment prior to application of soil improvement materials
- adjusted physical and chemical properties according to cultural requirements of the plants to be grown
- maintained records and reported soil test outcomes.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- physical properties of soils and media and methods for testing, including:
 - colour
 - organic matter
 - texture tests using field and sieve analysis techniques
 - structure

- air filled porosity
- moisture holding capacity
- soil bulk density
- infiltration rate and drainage properties, including hydraulic conductivity
- perched water tables
- wettability
- chemical properties of soils and media, and methods for testing, including:
 - pH using colorimetric and pH meters
 - salinity, total dissolved salts and electrical conductivity
 - types of nutrient tests and their purpose
- soil sampling, collecting and testing procedures, including:
 - tools and equipment required
 - procedures for testing
 - procedures for sampling, securing, packaging and labelling
- soil and media improvement strategies for physical and chemical characteristics, including:
 - products and processes for improving soil and media physical condition
 - soil ameliorants and improvement techniques
 - bio-stimulants
 - organic matter and effect on soil and media
 - water holding capacity and readily available water, including wetting agents and penetrants
 - soil biological organisms and their impact
 - effect of pH, salinity and fertilisers on availability of nutrients
 - soil profile both natural and constructed
 - Australian standards AS4454:2012 Composts, soil conditioners and mulches, and AS4419:2018 Soils for landscaping and garden use
- assessment and interpretation of soil test results for physical and chemical properties and their relationship to cultivated plants relevant to workplace
- basic mathematics for calculating rates of application of soil additives, water holding capacity, air filled porosity and measuring and weighing materials to perform accurate soil tests
- using test results to determine soil improvements
- safe field and laboratory practices when collecting and testing soils and media
- record keeping and reporting procedures for soil collecting, testing and planning procedures.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- • physical conditions:

- skills must be demonstrated in a typical workplace environment or an environment that accurately represents workplace conditions
- at least three separate soil sites or media for collecting and testing
- resources, equipment and materials:
 - soil testing equipment, including pH meter and pH colour test kit, conductivity meter, soil colour charts, NPK colour test kit
 - equipment for storing and handling samples
 - accurate measuring equipment for soil testing
 - personal protection and other safety equipment required for safe handling and testing of soils
- specifications:
 - workplace procedures and instructions related to soil testing and soil improvement
 - industry standards for testing and interpreting soil test results.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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