



Australian Government

Assessment Requirements for AHCPER336 Test, improve and maintain healthy soil in a permaculture system

Release: 1

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Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 9.0.

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 tested soils in a permaculture system and implemented a soil improvement and maintenance plan, including:

- identified purpose and site for soil sample and collected soil samples
- tested soil samples, which must include all of the following tests:
 - texture
 - structure
 - organic matter
 - pH
 - water infiltration
 - compaction
- prepared a soil sample for laboratory testing of nutrients
- determined soil improvement requirements and strategy to improve soil biota
- implemented soil improvement plan according to permaculture and organic principles
- monitored soil improvement plan to maintain soil health.
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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:

- permaculture principles and practices related to soil health and plant nutrition:
 - working with natural soils rather than importing soil
 - soil as an ecosystem
 - soil as biomass and carbon capture and storage

- sampling and testing of soils:
 - purpose for testing soils
 - common soil tests and their outcomes
 - seasonal and soil temperature effects on soil
- how to read and interpret soil test results
- soil testing techniques, such as:
 - jar test for soil structure
 - ribbon test and ball test for soil texture
 - infiltration or permeability test
 - pH testing
 - compaction test
 - non-wetting soil test
 - air-filled porosity test
 - worm count
 - microscopic biota in soils
- plant nutrient uptake and mineral action
- soil chemistry
- science of composting
- fungal and bacterial action and mulches appropriate to different plants
- additives to improve soils and protect soil biota and diversity, including:
 - compost and worm castings
 - biochar
 - green manures
 - organic mulch
 - manures/animal bedding materials
 - leaf mould
 - plantings – green manures, nurse plants
 - companion planting
 - chop and drop
 - nutrient trapping systems
 - greywater use
 - organically certified products
 - amendments that may include rock dust, gypsum, dolomite, lime, zircon, sulphur and other minerals
- soil life, including microscopic life
- monitoring and recording procedures for soil improvement plans, including:
 - observing changes over time
 - use of tables and charts to record data
 - importance of photographic records
 - documenting observations

- cultural practices detrimental to soil health, including:
 - over-watering or under-watering
 - over-grazing
 - over-cultivating
 - off-contour ploughing
- methods of waste disposal causing minimal impact on the environment
- the effects of conventional agricultural chemicals on soils and soil ecosystems.
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Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a permaculture system or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - soil and soil sampling tools and equipment
 - soil testing consumables and equipment for tests specified in the performance evidence
- specifications:
 - workplace policies, procedures, processes
 - manufacturer operating instructions for sampling and testing equipment
 - access to safety data sheets for test chemicals
 - workplace instructions/job specifications/client briefs
 - access to specific standards and principles of permaculture and organic growing
- relationships:
 - stakeholders with expertise
- timeframes:
 - according to seasonal variations.

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

Links

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