



Australian Government

Assessment Requirements for AHCPCM509 Apply knowledge of plant physiology to horticultural practices

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 6.0.

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 applied knowledge of plant physiology to horticultural practices on at least two occasions, and has:

- researched plant internal and external structures, including cell structures, primary tissues, and plant structural features
- investigated and described plant growth responses to horticultural practices
- applied knowledge of plant responses to physical and environmental conditions to manipulate plants for desired horticultural outcomes
- analysed plant reproduction, including asexual and sexual reproduction of plants and methods of seed and propagule dispersal
- researched and evaluated plant reproduction information for a range of plants.

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:

- botanical and biological references and publications relevant to plant physiology, including:
 - the International Code of Botanical Nomenclature (ICBN)
 - the International Code of Nomenclature for Cultivated Plants (ICNCP)
- plant cell structures and components, including:
 - cell wall
 - cell membrane
 - nucleus
 - vacuole
 - cytoplasm
 - mitochondrion

- chloroplasts
- other organelles
- plant primary tissues, including:
 - xylem
 - phloem
 - cuticle
 - epidermis
 - cortex
 - vascular cambium
 - vascular rays
 - stomata
 - parenchyma
 - sieve tubes
 - meristem
- plant structural features, including:
 - roots
 - stems
 - leaves
 - flowers
 - fruit
- plant functions, including:
 - diffusion
 - osmosis
 - photosynthesis
 - respiration
 - transpiration
 - translocation
- physical and environmental conditions that may impact on plant function, including:
 - light quantity, quality and duration
 - availability of water
 - temperature range
 - frost
 - wind
 - air quality
 - soil conditions, including availability of a range of mineral nutrients, compaction and drainage
 - presence of competing plants, diseases and pests
 - influence of building, walls and paving
- horticultural practices that may impact on plant function, including:
 - the selection, growing, management and maintenance of plants

- the manipulation and management of growing environments
- plant protection
- propagating and disbudding
- pruning techniques, including crown reduction, thinning and root pruning
- creation of artificial microclimates and growing environments
- use of soil ameliorants and mulches
- fertilising and watering regimes
- location of plants in relation to light, moisture, air pollutants and competition with other plants
- the role of plant growth regulators in plant responses
- the manipulation of physical and environmental conditions for desired plant growth outcomes
- the asexual reproduction of plants through natural vegetative reproduction and the propagation of plants through horticultural practices, including stem, leaf and root:
 - cuttings
 - division
 - grafting
 - layering
- sexual reproduction of plants, including:
 - the development of gametes
 - pollination
 - fertilisation and embryo development
 - seed
 - fruit
- the range of dispersal characteristics of seeds and other propagule, including:
 - size
 - shape structure
 - wind, water or vector dispersal
- the application of plant reproduction processes for use in horticultural practices.

Assessment Conditions

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

- physical conditions:
 - a workplace setting or an environment that accurately represents workplace conditions
- resources, equipment and materials:
 - access to a wide range of plants that grow in a range of horticultural settings
 - microscope
 - computer

- industry publications and internet sources of information relevant to applying knowledge of plant physiology to horticultural practices
- specifications:
 - botanical and biological references and publications relevant to plant physiology
- timeframes:
 - according to job requirements.

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>