



Australian Government

AHCARB602 Diagnose tree diseases

Release: 1

AHCARB602 Diagnose tree diseases

Modification History

Release	TP Version	Comment
1	AHCv1.0	Initial release

Application

This unit of competency describes the skills and knowledge required to diagnose tree diseases including diseases of palms and other woody monocotyledons.

This unit applies to individuals with broad theoretical and technical knowledge of a specific area or a broad field of work and learning and cognitive, technical and communication skills to demonstrate autonomy, judgement and defined responsibility in undertaking complex work within broad parameters to provide specialist advice and functions.

The role involves the self-directed application of specialised knowledge in arboriculture with substantial depth in areas such as with substantial depth in areas such as disease diagnostics and disease classification and management.

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

Pre-requisite Unit

Nil.

Unit Sector

Arboriculture (ARB)

Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Assess environmental impact	1.1 Identify the tree and determine its region of origin 1.2 Determine seasonal growth stages of the tree 1.3 Ascertain current and past cultural practices 1.4 Determine characteristics of growing environment affecting

Element	Performance criteria
	growth of specific tree species 1.5 Identify environmental and cultural factors predisposing tree to disease 1.6 Determine and assess relevant physical and chemical properties of the soil or growing media
2. Identify diseased trees	2.1 Determine impact of disease type on tree parts and systems 2.2 Use industry standard terminology to describe disease attributes in relation to tree anatomy, physiology, pathology and taxonomy 2.3 Develop a glossary of disease terminology 2.4 Consider natural defence systems of trees against major disease types 2.5 Determine disease groups according to a disease classification guide 2.6 Interpret signs and symptoms of disease to identify which trees are diseased
3. Diagnose tree disease	3.1 Record symptoms and signs of disease using accepted nomenclature 3.2 Collate samples and evidence into a reference collection 3.3 Determine disease type according to a disease classification guide 3.4 Determine identification of macro biotic disease to family level 3.5 Prepare specimens of microbiotic diseases for microscopic examination 3.6 Collect, package and dispatch specimens for specialist diagnosis or laboratory testing where required
4. Provide a prognosis	4.1 Determine the current health and energy reserves of the tree 4.2 Assess the severity and extent of the disease 4.3 Research the virulence of the disease on the specific host 4.4 Determine the phenology of the host and the disease 4.5 Research and consider the lag time of management options 4.6 Consider influences of environmental conditions on host, disease and management options 4.7 Provide an informed prognosis in writing and verbally
5. Develop, document and monitor the management program	5.1 Research management options such as Integrated Pest management (IPM) and recommend appropriate options 5.2 Develop a disease management program within IPM guidelines 5.3 Record and document tree diseases and management programs in a report 5.4 Monitor management plans and modify or refine as needed

Foundation Skills

Foundation Skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Unit Mapping Information

This unit is equivalent to AHCARB503 Diagnose tree diseases.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCARB602 Diagnose tree diseases

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Performance Evidence

The candidate must be observed diagnosing and recording diseases of trees, and developing, monitoring and documenting a report on a tree disease management plan.

The candidate must be assessed on their ability to integrate and apply the performance requirements of this unit in a workplace setting. Performance must be demonstrated consistently over time and in a suitable range of contexts.

The candidate must provide evidence for and demonstrate:

- identifying the tree and determining its region of origin
- determining seasonal growth stages of the tree
- ascertaining current and past cultural practices
- determining characteristics of the growing environment affecting the growth of a specific tree species
- identifying environmental and cultural factors that predispose the tree to disease
- determining and assessing the relevant physical and chemical properties of the soil or growing media
- determining impact of disease type on tree parts and systems
- use of industry standard terminology to describe disease aspects of tree anatomy, physiology, pathology and taxonomy
- developing a glossary of disease terminology
- considering natural defence systems of trees against major disease types
- determining disease groups according to a disease classification guide
- interpreting signs and symptoms of disease to identify which trees are diseased
- recording symptoms and signs of disease using accepted nomenclature
- collating samples and evidence into a reference collection
- determining disease type according to a disease classification guide
- determining identification of macro biotic disease to family level
- preparing specimens for microscopic examination of microbiotic diseases
- collecting, package and dispatch specimens for specialist diagnosis or laboratory testing where required
- determining current health and energy reserves of the tree

- assessing severity and extent of the disease
- researching virulence of the disease on the specific host
- determining phenology of the host and the disease
- researching and considering lag time of management options
- considering influences of environmental conditions on host, disease and management options
- providing an informed prognosis in writing and verbally
- researching management options such as Integrated Pest Management (IPM) and recommending appropriate options
- developing a disease management program within IPM guidelines
- recording and documenting tree diseases and management programs in a report
- monitoring management plans and modifying or refining as needed
- compiling a disease reference collection
- use of industry standard terminology to describe disease aspects of tree anatomy, physiology, pathology and taxonomy.

Knowledge Evidence

The candidate must demonstrate knowledge of:

- disease classification guides
- virulence, phenology, prognosis and disease severity and extent
- critical systems in the tree; physiologically, anatomically and biochemically
- patterns of host – disease interaction for each major disease type
- tree nutrition issues associated with the soil or media
- identification of signs and symptoms of tree health problems
- determination of possible and probable physiological, anatomical and biochemical impacts on the tree
- disease detection methods, taxonomic identification, life cycle stages and characteristics of the specific horticultural trees of the organisation
- natural defence systems of trees
- chemical use, toxicity and compatibility with target trees, soil and environmental characteristics of the horticultural region
- tree anatomy, physiology, pathology and taxonomy
- seasonal growth anatomy of the tree
- primary cellular and anatomical structures of the tree
- preparation of specimens of microbiotic diseases for microscopic examination
- horticultural function, cultural and performance requirements and characteristics of the trees or other woody plants being considered
- chemical, cultural and biological control methods as part of an Integrated Pest Management strategy
- methods of providing a reasoned prognosis
- the growing requirements and characteristics of trees
- the impact of the growing environment on tree health

- how to research information about tree health problems, diagnoses and remedial treatment available
- nomenclature of symptoms and disease signs
- industry standard terminology to describe disease attributes in relation to tree anatomy, physiology, pathology and taxonomy
- applicable legislative requirements.

Assessment Conditions

Performance must be demonstrated consistently over time in a suitable range of contexts and have a productivity-based outcome.

Assessment must be demonstrated consistently over time in a suitable range of contexts and have a productivity-based outcome. No single assessment event or report is sufficient to achieve competency in this unit.

Assessment may be conducted in a simulated or real work environment, however determination of competency requires the application of work practices under work conditions.

The mandatory equipment and materials used to gather evidence for assessment include:

- equipment:
 - computer
 - word processing software
 - internet connection
 - digital camera with macro
 - diagnostic tools including sounding hammer, trowel, probe, cordless drill
 - soil testing equipment
 - basic digital dissection microscope 10 -100x
 - compound microscope
 - microtome, staining and slide mounting equipment
 - slides and coverslips
 - temporary/permanent mountant
 - histochemical stains
 - trees without diseases
 - trees with biotic diseases
 - trees with abiotic diseases
 - cross-sectioned defects and diseases
- materials:
 - disease management plan
 - disease reference collection
 - glossary of disease terminology

Assessors must satisfy current standards for RTOs in the assessment of arboriculture units of competency.

Assessment must be conducted only by persons who have:

- arboriculture vocational competencies at least to the level being assessed
- current arboriculture industry skills directly relevant to the unit of competency being assessed

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