Australian Government

Department of Education, Employment and Workplace Relations

AHCARB503A Diagnose tree diseases

Release: 1

ISC INDUSTRY SKILLS COUNCILS
Creating Australia's Future

AHCARB503A Diagnose tree diseases

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the process of diagnosing tree diseases (including diseases of palms and other woody monocotyledons) and defines the standard required to: describe the growing requirements and characteristics of trees; determine the impact of the growing environment on the health of a tree; determine the mode of damage; diagnose and record tree diseases; formulate disease management program including the use of Integrated Pest Management (IPM); provide a reasoned prognosis; document a management program report; monitor and recommend changes to the management program.

Application of the Unit

Application of the unit	This unit applies to the process of diagnosing tree diseases and is likely to be undertaken without supervision. Responsibility for and organisation of the work of others involved in the diagnosis and management of tree diseases may be required.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

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Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not Applicable

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
1. Assess environmental impact	1.1. The tree is identified to the lowest taxonomic level, and its region of origin determined. 1.2. The seasonal growth stages of the tree are determined. 1.3. Any regular cultural practices are identified where appropriate. 1.4. Characteristics of the growing environment that affect the growth of a specific tree species are determined. 1.5. Environmental and cultural factors that predispose the tree to diseases are identified. 1.6. Relevant physical and chemical properties of the soil or growing media are determined and assessed.
2. Identify diseased trees	2.1. Impact of disease type on tree parts and systems is determined. 2.2. Natural defence systems of the trees against major disease types are considered. 2.3. Disease groups are determined according to a disease classification guide. 2.4. Signs and symptoms of disease are used to identify which trees are diseased.
3. Diagnose tree disease	3.1. Symptoms and signs of disease are recorded using accepted nomenclature. 3.2. Samples and evidence are collated into a reference collection. 3.3. Disease type is determined according a disease classification guide. 3.4. Identification of macro biotic disease is determined to genus level. 3.5. Specimens are prepared for microscopic examination of micro biotic diseases. 3.6. Specialist services are determined and consulted in complex or indeterminate cases. 3.7. Specimens are correctly collected, packaged and dispatched for specialist diagnosis or laboratory testing where required.
4. Provide a prognosis	4.1. The current health and energy reserves of the tree are determined. 4.2. The severity and extent of the disease is assessed. 4.3. The virulence of the disease on the specific host is researched.

ELEMENT	PERFORMANCE CRITERIA
	4.4. The phenology of the host and the disease are determined.
	4.5. Lag time of management options is researched and considered.
	4.6. Influences of environmental conditions on host, disease and management options are considered.
	4.7. An informed prognosis is provided in writing and verbally.
5. Develop, document and monitor the management program	5.1. Management options are researched and appropriate options are recommended.
	5.2. A disease management program is developed within IPM guidelines.
	5.3. Tree diseases and management programs are recorded and documented in a report.
	5.4. Management plans are monitored and modified or refined as needed.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.

Required skills

- differentiate between biotic and abiotic symptoms in trees
- research information about tree health problems, their diagnosis and remedial treatments available
- identify signs and symptoms of tree health problems
- determine possible causes of the problem
- assess the severity, extent and speed of onset of the problem
- determine the possible and probable physiological, anatomical, biochemical and physiological impact on the tree
- document management programs for the diseases diagnosed
- compile a disease reference collection
- comply with legislative requirements
- provide a reasoned prognosis
- monitor diseases on an ongoing basis
- use literacy skills to fulfil job roles as required by the organisation. The level of skill may range from reading and understanding documentation to completion of

REQUIRED SKILLS AND KNOWLEDGE

written reports

- use oral communication skills/language competence to fulfil the job role as specified by the organisation including questioning, active listening, asking for clarification, negotiating solutions and responding to a range of views
- use numeracy skills to estimate, calculate and record complex workplace measures
- use interpersonal skills to work with others and relate to people from a range of cultural, social and religious backgrounds and with a range of physical and mental abilities.

Required knowledge

- tree anatomy, biochemistry, physiology, histology, pathology and taxonomy
- function of the anatomical parts of the tree, palm etc
- the primary cellular and anatomical structures of the tree
- the critical systems in the tree; physiologically, anatomically and biochemically
- horticultural function, cultural and performance requirements and characteristics of the trees or other woody plants being considered
- tree nutrition issues associated with the soil or media present
- disease detection methods, taxonomic identification, life cycle stages and characteristic symptoms for the specific horticultural trees of the enterprise
- patterns of host - disease interaction for each major disease type
- chemical, cultural and biological control methods as parts of an IPM strategy
- chemical use, toxicity and compatibility with target trees, soil, and environmental characteristics of the horticultural region.

Evidence Guide

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy holistically all of the requirements of the performance criteria and required skills and knowledge and include achievement of the following: • describe the growing requirements and characteristics of trees • determine the impact of the growing environment on the health of a tree • determine the mode of damage • diagnose and record tree diseases • formulate disease management program including the use of IPM • provide a reasoned prognosis • document a management program report • monitor and recommend changes to the management program.
Context of and specific resources for assessment	Competency requires the application of work practices under work conditions. Selection and use of resources for some worksites may differ due to the regional or enterprise circumstances.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole.	
Trees may include:	• all species of trees and woody tree like vegetation forms.
Disease may include;	• both biotic and abiotic diseases and their mode of impact on trees, palms and woody monocotyledons along with a variety of

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RANGE STATEMENT	
	management protocols.

Unit Sector(s)

Unit sector	Arboriculture

Co-requisite units

Co-requisite units		

Competency field

Competency field	

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