



**Australian Government**

# **AHCARB808 Contextualise diagnostic tests**

**Release: 1**

## AHCARB808 Contextualise diagnostic tests

### Modification History

| Release   | Comments                                                                                                                    |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|
| Release 1 | This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 5.0. |

### Application

This unit of competency describes the skills and knowledge required to review diagnostic testing models, analyse their performance, contextualise the test for a range of tree domains and execute a diagnostic test project.

The unit applies to individuals with highly specialised advanced theoretical and technical knowledge for professional work and research in arboriculture. They exercise advanced cognitive, technical and communication skills and demonstrate complete autonomy, judgement and adaptability in research and analysis for complex problems.

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

### Pre-requisite Unit

Nil

### Unit Sector

Arboriculture (ARB)

### 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. Research diagnostic testing principles and processes | 1.1 Conduct a literature review on tree-related research and diagnostic test case studies<br>1.2 Operate diagnostic testing equipment to industry and manufacturer standards<br>1.3 Interpret underpinning scientific principles of test processes<br>1.4 Determine diagnostic assumptions and limitations of testing |

| Elements                                                              | Performance Criteria                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Elements describe the essential outcomes.</i>                      | <i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>                                                                                                                                                                                                                                                                            |
|                                                                       | process for selected diagnostic tool                                                                                                                                                                                                                                                                                                                                              |
| 2. Analyse requirements and calibration processes                     | 2.1 Analyse quantification, variance and tolerance requirements for selected diagnostic tools<br>2.2 Investigate and verify calibration baselines for diagnostic equipment<br>2.3 Verify calibration processes have been performed on diagnostic equipment according to verified baselines                                                                                        |
| 3. Determine project parameters and execute a diagnostic test project | 3.1 Select testing processes for primary tree domains<br>3.2 Select diagnostic tools for each domain and contextualise the testing process<br>3.3 Define research method to be used<br>3.4 Conduct a literature review for current research and science of each primary domain<br>3.5 Establish efficacy of test for each primary domain<br>3.6 Conduct a diagnostic test project |
| 4. Interpret testing results                                          | 4.1 Analyse test results for performance metrics of each of the selected diagnostic tools<br>4.2 Interpret results against benchmark and anticipated ranges<br>4.3 Confirm predictive responses in terms of pre-treatment results to projected post-treatment outcomes<br>4.4 Articulate meaning of results within context of primary domain                                      |
| 5. Provide prognosis and prepare management plans                     | 5.1 Provide an informed prognosis<br>5.2 Research management options and lag time<br>5.3 Prepare a report that documents management plans                                                                                                                                                                                                                                         |

## 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 |
|-------|-------------|
|-------|-------------|

| Skill    | Description                                                                                                                                                                                                                                          |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reading  | <ul style="list-style-type: none"><li>Compare and contrast technical specifications and procedures for diagnostic tests from case studies to analyse and formulate views and opinions</li></ul>                                                      |
| Numeracy | <ul style="list-style-type: none"><li>Perform complex analytical calculations for testing and evaluating the accuracy and tolerances of diagnostic tests and to establish baselines and calibration requirements for testing and equipment</li></ul> |

## Unit Mapping Information

| Code and title current version                 | Code and title previous version                | Comments                                                                                     | Equivalence status |
|------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------|
| AHCARB808<br>Contextualise<br>diagnostic tests | AHCARB801<br>Contextualise<br>diagnostic tests | Performance criteria clarified<br>Foundation skills added<br>Assessment requirements updated | Equivalent         |

## 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 AHCARB808 Contextualise diagnostic tests

## Modification History

| Release   | Comments                                                                                                                    |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|
| Release 1 | This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 5.0. |

## 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 contextualised diagnostic test results for each of the following five primary domains for trees:

- anatomy
- physiology
- pathology
- dynamics
- edaphic environment.

There must also be evidence that the individual has:

- conducted a literature review of peer-reviewed research and relevant case studies
- operated diagnostic testing equipment
- interpreted underpinning scientific principles of test processes
- determined the diagnostic assumptions and limitations of the testing process for the selected diagnostic tool
- analysed quantification, variance and tolerance requirements
- investigated and verified calibration baselines for diagnostic equipment
- verified calibration processes have been performed on test equipment
- selected testing processes for each of five primary tree domains
- selected diagnostic tools and contextualised the testing process for each domain
- defined research method to be used
- conduct a literature review for current research and science of each primary domain
- established efficacy of the test for each primary domain
- conducted a diagnostic test project
- analysed test results for performance metrics of selected diagnostic tools
- interpreted results against benchmark and anticipated ranges
- confirmed predictive responses in terms of post-treatment to pre-treatment results
- articulated meaning of results within context of primary domain

- provided an informed prognosis
- researched management options and lag time
- formulated a report documenting management plans.

## 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:

- conducting literature reviews for peer-reviewed documentation, scientific research and case studies
- diagnostic testing processes and test equipment, and their purpose and functional operation, used for tree domains, including:
  - limitations of the testing process
  - assumptions and limitations of tools used in diagnostics
  - standardising test equipment and determining baselines and calibration
  - verifying efficacy of testing methodologies
- primary tree domains and testing regimes and diagnostics used for each, including:
  - tree anatomy
  - tree physiology
  - tree pathology
  - tree dynamics
  - the edaphic environment of trees
- developing scientific research projects and selecting a research method, including:
  - setting goals and outcomes for research
  - hypothesis testing
  - observational research
  - measurement of functional relationships
  - establishing performance metrics and normal anticipated ranges of test result
- test results; their documentation and interpretation, including:
  - diagnostic test projects and processes
  - contextual understanding of results
  - statistical analysis of results
  - prognostics
  - use of diagnostic outcomes in the development of management plans.

## Assessment Conditions

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

- physical conditions:
  - trees and forests or an environment that accurately represents workplace conditions

- resources, equipment and materials:
  - computer with word processing and statistical analysis software
  - diagnostic tools for selected testing
  - access to diagnostic test equipment and operating instructions
- specifications:
  - standard procedures and quality standards of performing diagnostics tests and analysis
  - reference materials, reports and scientific literature for reviews.

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

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

## Links

Companion Volumes, including Implementation Guides, are available at VETNet: -

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