Modification history

Release	Comments
Release 2	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 4.0.
Release 1	This version released with AHC Agriculture, Horticulture, Conservation and Land Management Training Package Version 1.0.

AHCARB801	**Contextualise diagnostic tests**
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 advanced theoretical and technical knowledge and skills for professional or highly skilled work and/or further learning in one or more disciplines or areas of practice. This unit applies to individuals with advanced cognitive, technical and communication skills to provide specialist advice, analyse, generate and transmit solutions to complex problems, and to demonstrate autonomy, well-developed judgement, adaptability and responsibility as a practitioner or learner. No occupational licensing, legislative or certification requirements are known to apply to this unit at the time of publication.
Prerequisite Unit	Nil
Unit Sector	Arboriculture (ARB)

Elements	**Performance Criteria**
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Research diagnostic testing principles and processes	1.1 Conduct a literature review on tree related research and diagnostic test case studies 1.2 Develop operational competence for using diagnostic testing equipment to industry and manufacturers standards 1.3 Interpret underpinning scientific principles of test processes 1.4 Determine diagnostic assumptions and limitations of testing process for selected diagnostic tool
2. Analyse requirements and calibrate processes	2.1 Analyse quantification, variance and tolerance requirements for selected diagnostic tools 2.2 Investigate and verify calibration baselines for diagnostic equipment 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 3.2 Select diagnostic tools for each domain and contextualise the testing process 3.3 Define research method to be used 3.4 Conduct a literature review for current research and science of each primary domain 3.5 Establish efficacy of test for each primary domain 3.6 Conceive and execute a diagnostic test project
4. Interpret testing results	4.1 Analyse test results for performance metrics of each of the selected diagnostic tools 4.2 Interpret results against benchmark and anticipated ranges 4.3 Confirm predictive responses in terms of pre-treatment results to projected post treatment outcomes 4.4 Articulate meaning of results within context of primary domain
5. Provide prognosis and document management plans	5.1 Provide an informed prognosis 5.2 Research management options and lag time 5.3 Formulate a report that documents management plans

Foundation Skills (NB - To be completed following confirmation of PC's) *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**
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Unit Mapping Information			
Code and title current version	**Code and title previous version**	**Comments**	**Equivalence status**
AHCARB801 Contextualise diagnostic tests	AHCARB801 Contextualise diagnostic tests	Changes to Performance Criteria for clarity Updated Performance Evidence and Knowledge Evidence	Equivalent unit

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

TITLE	Assessment requirements for AHCARB801 Contextualise diagnostic tests

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 5 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
- developed operational competency for use of 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 5 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
- conceived and executed 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, test equipment 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

Knowledge Evidence

- observational research
- measurement of functional relationships
- establishing performance metrics and normal anticipated ranges of test result
- test results and their documentation and interpretation including:
  - diagnostic test projects and processes
  - tests results and contextual understanding
  - statistical analysis of results
  - prognostics
  - use of diagnostic outcomes in the development of management plans.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
  - access to a trees and forests with insect populations or environment that accurately represents workplace conditions
- resources, equipment and materials:
  - computer with word processing and statistical analysis software
  - internet connection for research
  - diagnostic tools for selected testing
  - access to diagnostic test equipment and operating instruction
- specifications:
  - access to standard procedures and quality standards performing diagnostics tests and analysis
  - access to reference materials, reports and scientific literature for reviews.

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.

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