Australian Government

AHCARB807 Conduct an entomology research project

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 5.0.

Application

This unit of competency describes the skills and knowledge required to conduct an entomology research project requiring the collection and documentation of insects affecting trees. Important research themes to be investigated include the interrelationships of insects on their environment, forests and trees and the impact they have on economics, health of trees and the control strategies employed to contain infestations.

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
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Research insects	1.1 Investigate anatomical, morphological and taxonomic features of insects required for identification 1.2 Examine the interaction of insects with trees 1.3 Research annualised population and generational behaviour of

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	insects
2. Construct professional resource collections	2.1 Develop and document a reference collection of insects 2.2 Create a database of tree pests and vectors 2.3 Compile and document host, climatic and geographic distribution data of insects affecting trees 2.4 Record and compile generational phenology of insects
3. Research and assess tree pest and vector interactions	3.1 Investigate and identify natural antagonists, predators and parasitoids of insects affecting trees 3.2 Investigate phytophagous and damaging insect–tree dynamics 3.3 Investigate the tree dynamics of symbiotic/beneficial and insects 3.4 Investigate physiological responses of tree resistance to insects 3.5 Investigate host–pathogen and pathogen–vector interactions 3.6 Evaluate conditions for selection of host trees by subcortical feeding insects and factors associated with attack 3.7 Investigate and assess insect transmission of disease 3.8 Evaluate multi-trophic interactions between host plant, pest and pathogen/parasitoids
4. Evaluate control systems	4.1 Determine economic costs of insect damage to trees 4.2 Evaluate insects as indicators of environmental health and condition 4.3 Determine insect biological hazards 4.4 Investigate impact and effects of control strategies on target and non-target organisms 4.5 Investigate insect resistance to pesticides 4.6 Investigate and evaluate biological agents for tree pest control 4.7 Investigate and evaluate tree health management options to manage insect infestation
5. Present results of research	5.1 Collect, tabulate, and analyse data from investigations 5.2 Determine relevance of results to arboriculture 5.3 Compile and communicate research and results into a research paper

Elements	Performance Criteria
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
	5.4 Submit research paper for review according to standards of a professional technical peer-reviewed journal 5.5 Review feedback and amend according to reviewer comments 5.6 Prepare article or presentation to communicate key facts and conclusions to industry

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
Reading	• Interpret complex texts, research reports and biological references to extract information relevant to entomological research
Writing	• Create complex technical documents that include appropriate conventions and stylistic devices to express precise meaning for target audience
Oral communication	• Establish and maintain complex and effective spoken communication during presentations to target audience

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCARB807 Conduct an entomology research project	AHCARB704 Conduct an entomology research project	Code changed to reflect AQF alignment Elements and performance criteria clarified Foundation skills added 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