

<b>Prerequisite competency completion</b>		
Not applicable. There are no prerequisite requirements.		
<b>Required reports completion</b>		
Has the candidate successfully completed the <b>required reports</b> ?	<b>Yes/No (Y/N)</b>	<b>Signed (Initialled)</b>
Entomology research paper		
Insect collection/database of pests and vectors		
<b>Mandatory Equipment (as a minimum)</b>		
Has each of the mandatory equipment items been used to gather evidence for assessment?	<b>Yes/No (Y/N)</b>	<b>Signed (Initialled)</b>
computer		
word processing software		
internet connection		
digital camera with macro		
diagnostic tools including sounding hammer, trowel, probe, cordless drill		
soil testing equipment		
digital dissection microscope 10 -100x		
compound microscope		
microtome, staining and slide mounting equipment		
slides and coverslips		
temporary/permanent mountant		
histochemical stains		
<b>Knowledge Evidence</b>		
Has the candidate successfully completed the <b>Knowledge Evidence</b> requirements by demonstrating knowledge of each of the line items below?	<b>Yes/No (Y/N)</b>	<b>Signed (Initialled)</b>
anatomical, morphological and taxonomical features of insect specimens		
behaviour, ecology and nutrition of insect interaction with trees		
database construction of tree pests and vectors		
annualised population of insects		
generational behaviour of insects		
insect collections		

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generational phenology		
host, climatic and geographic distribution data		
natural antagonists, predators and parasitoids of insects		
phytophagous and damaging insect-tree dynamics		
symbiotic/beneficial and insect-tree dynamics		
physiology of tree resistance to insects		
host-pathogen and pathogen-vector interactions		
conditions associated with the selection of host trees by subcortical feeding insects		
factors associated with successful attack		
insect transmission of disease		
multi-trophic interactions between host plant-pest-pathogen/parasitoids from a systems approach		
economic costs of insects		
insects as environmental indicators		
insect biological hazards		
direct and indirect impact and effects of chemical pesticides or biocontrol agents		
target and non-target organisms		
insect resistance to pesticides		
fungi as biological control agents of tree pests		
biological control methods of Integrated Pest Management (IPM)		
plant health management options to offset the effects of insect damage		
collection, tabulation, and statistical analysis of data for publications		
compilation and communication of research and test results in a research paper		
professional technical peer-reviewed journal		
methods of reviewing and amending feedback		
methods of communicating key facts and conclusions in articles and presentations		
publishing in non-technical industry publications		
<b>Performance evidence</b>		
Has the candidate successfully demonstrated the <b>Performance Evidence</b> requirements of the unit of competency AHCARB704 Conduct an entomology research project, <b>and as per listed line items below?</b>	<b>Yes/No (Y/N)</b>	<b>Signed (Initialled)</b>
describing and identifying anatomical, morphological and taxonomical features of insect specimens		

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examining and describing the behaviour, ecology and nutrition of insect interaction with trees		
researching annualised population and generational behaviour of insects		
constructing a database of tree pests and vectors		
developing and documenting an insect collection		
compiling host climatic and geographic distribution data		
researching and identifying natural antagonists, predators and parasitoids of insects		
identifying phytophagous and damaging insect-tree dynamics		
identifying symbiotic/beneficial and insect-tree dynamics		
researching physiology of tree resistance to insects		
researching host-pathogen and pathogen-vector interactions		
evaluating conditions associated with the selection of host trees by subcortical feeding insects and the factors associated with successful attack		
researching and assessing insect transmission of disease		
evaluating multi-trophic interactions between host plant-pest-pathogen/parasitoids from a systems approach		
determining economic costs of insects		
evaluating insects as environmental indicators		
determining insect biological hazards		
investigating direct and indirect impact and effects of chemical pesticides or biocontrol agents on target and non-target organisms		
researching insect resistance to pesticides		
investigating fungi as biological control agents of tree pests		
evaluating biological control methods of integrated pest management (IPM)		
researching and evaluating plant health management options to offset the effects of insect damage		
collecting, tabulating, and statistically analysing data for publications		
determining the relevance of the results to arboriculture		
compiling and communicating research and test results in a research paper		
submitting research paper to a professional technical peer-reviewed journal		
reviewing feedback and amending where appropriate		
communicating key facts and conclusions to industry in an article published in a non-technical industry publication or via presentation to an industry training event		

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<b>Assessment conditions</b>		
<p>It is an industry requirement that competency in this unit requires the identification by anatomical, morphological and taxonomical features of insect specimens, compiled into a collection of a minimum of <b>one hundred (100)</b> specimens of arboricultural concern or benefit from at least <b>four (4)</b> orders of insects. The collection may be digital and/or physical, correctly labelled and containing information on:</p> <ul style="list-style-type: none"> <li>• date of collection</li> <li>• location of collection</li> <li>• host where applicable</li> <li>• insect genus, and</li> <li>• species where possible.</li> </ul>		
Have the assessments incorporated the assessment conditions and met the industry requirements for competency in this unit <b>as per listed line items below?</b>	<b>Yes/No (Y/N)</b>	<b>Signed (Initialled)</b>
Has the assessment confirmed the identification by anatomical, morphological and taxonomical features of <b>one hundred (100)</b> insect specimens?		
Has the assessment confirmed the collection of insects from at least <b>four (4)</b> orders of insects?		
Has the assessment confirmed the collection of insects was correctly labelled and containing information on: date of collection, location of collection, host where applicable, insect genus, and species where possible?		
<p>It is an industry requirement that research projects and management strategies include <b>two (2) or more</b> of the following inter-disciplinary programs, and <b>must focus on a specified insect or closely related insect species</b>:</p> <ul style="list-style-type: none"> <li>• Conceive, design, and implement safe and efficacious control strategies</li> <li>• Research and develop alternative management strategies</li> <li>• Investigate the longevity, infectivity, and virulence</li> <li>• Monitor and assess infestation levels of outbreaks</li> <li>• Design and implement biocontrol strategies using predators, parasitoids, and entomopathogenic fungi</li> <li>• Design and implement methods for monitoring and assessment of population dynamics and distribution of tree pest species</li> <li>• Conduct and evaluate a comparative ecological field study investigating efficacy and compatibility</li> <li>• Trial and research a management plan for a phytophagous insect</li> <li>• Trial and research a breeding program for a beneficial insect</li> <li>• Conduct research of three model systems to examine tritrophic effects of susceptibility</li> <li>• Design, implement, investigate, evaluate and report on tritrophic interactions</li> <li>• Investigate preference and survivability</li> <li>• Design projects investigating the subsequent risk analysis and tests required</li> <li>• Develop a tree pest survey strategy</li> <li>• Research and report on geographical or climatic distribution</li> <li>• Coordinate an international and domestic multidisciplinary collaborative research initiative.</li> </ul>		

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Has the candidate successfully completed the competency requirements of the assessment conditions <b>as per listed line items below?</b>		<b>Yes/No (Y/N)</b>	<b>Signed (Initialled)</b>
Has the assessment confirmed that the research projects /management strategies included <b>two (2)</b> or more of the specified inter-disciplinary programs, and were focused on a specified insect or closely related insect species?			
Assessment may be conducted in a simulated or real work environment; however, determination of competency requires the application of work practices under work conditions.		<b>Yes/No (Y/N)</b>	<b>Signed (Initialled)</b>
Have assessments been demonstrated consistently over time?			
Have assessments been demonstrated in a suitable range of contexts?			
Have assessments been demonstrated with a productivity-based outcome?			
Have assessments been demonstrated with multiple assessment events and reports?			
<b>Assessor Declaration</b>			
<b>Assessors must satisfy current standards for RTOs in the assessment of arboriculture units of competency.</b>		<b>Yes/No (Y/N)</b>	<b>Signed (Initialled)</b>
<b>Has assessment been conducted only by persons who have:</b>			
<ul style="list-style-type: none"> <li>entomology competencies at least to the level being assessed?</li> </ul>			
<ul style="list-style-type: none"> <li>current entomology skills directly relevant to the unit of competency being assessed?</li> </ul>			
<b>Assessor name</b>	<b>Assessor qualification</b>	<b>Year</b>	<b>Full Signature</b>
<b>Competency Determination</b>			
This section determines the skills and knowledge required to conduct an entomology research project.			<b>Competent /Not yet competent</b>
<b>The candidate is competent in conducting an entomology research project.</b>			
<b>Competency Assessment Completion</b>			
<b>Assessor name</b>	<b>Date</b>	<b>Full Signature</b>	

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