



**Australian Government**

# **Assessment Requirements for AHCARB702 Analyse mycology cultures**

**Release: 1**

# Assessment Requirements for AHCARB702 Analyse mycology cultures

## Modification History

Release	TP Version	Comment
1	AHCv1.0	Initial release

## Performance Evidence

The candidate must be assessed on their ability to integrate and apply the performance requirements of this unit in a workplace setting. Performance must be demonstrated consistently over time and in a suitable range of contexts.

The candidate must provide evidence for and demonstrate:

- researching the role of fungi in biodiversity, tree nutrition, forest health, environmental biochemistry and pathology
- researching the role and contribution of wood decay fungi to forest health, the influence of environmental stresses and physiological tree responses
- examining the taxonomy and evolutionary relationships of corticoid and polypore wood decay fungi
- investigating the role of fungal species on various hosts
- conducting analysis of lifecycle, biology, ecology and effects of pathogenic wood decay fungi species
- conducting analysis of lifecycle, biology, ecology and effects of saprophytic wood decay fungi species
- examining the relationships of fungal species with branch and tree failures
- analysing biosecurity implications of known and threat fungal species
- reviewing PLANTPLAN biosecurity plans and procedures
- performing visual evaluation of the signs and symptoms of fungi and decay, including: visual symptoms such as dieback, reduced growth rate and chlorosis, presence of basidiocarps, decayed wounds, hollows and cavities
- performing field identification of wood decay species of fungi to generic level
- performing field identification of non-pathogenic fungi species to generic level
- documenting location, size, and condition of wood decay fungi, presence of mycoparasites, and size, condition and extent of hollows and cavities
- documenting details of environmental characteristics of fungal affected trees: site characteristics, site history, soil conditions, climate and microclimatic variables, proximity of adjacent trees and vegetation, movement of people and vehicles, and potential impacts to assets, property and landscape

- determining methods of introduction, establishment, spread, and susceptibility of adjacent trees and vegetation
- performing field sampling techniques of wood decay fungi and mycoparasites suitable for in-vitro culture and identification
- decanting and preparing standard laboratory chemicals and materials
- creating selective culturing media to grow and isolate field samples
- preparing field samples for culturing on media
- taking samples from field samples and apply to growth media
- isolating clean cultures from primary field cultures, and repeating until clean sample is obtained
- preparing cultured samples for further testing such as deoxyribonucleic (DNA) based assay techniques
- documenting records and storing securely digital and physical evidence: field samples, slides, growth media, DNA and cultured samples, following chain of evidence protocols
- preparing microscope slides of isolated cultures
- examining and identify cultured fungal samples
- performing laboratory identification of wood decay fungi to generic level
- recording digital images of identified fungi
- performing laboratory assay tests for growth rate, temperature range, pathogenicity, and mycoparasitism to evaluate fungal characteristics
- documenting experimental assay test results
- developing and maintaining a culture collection for identification of fungi and submission to relevant government databases and culture collections
- documenting a diagnostic report on a suspected emergency plant pest (EPP) following PLANTPLAN guidelines.

## Knowledge Evidence

The candidate must demonstrate knowledge of:

- the role of fungi in biodiversity, tree nutrition, forest health, environmental biochemistry and pathology
- the role and contribution of wood decay fungi to forest health, the influence of environmental stresses and physiological tree responses
- taxonomy and evolutionary relationships of corticoid and polypore wood decay fungi
- the role of fungal species on various hosts
- lifecycles, biology, ecology and effects of pathogenic wood decay fungi species
- lifecycle, biology, ecology and effects of saprophytic wood decay fungi species
- relationships of fungal species with branch and tree failures
- biosecurity implications of known and threat fungal species
- PLANTPLAN biosecurity plans and procedures
- visual evaluation of the signs and symptoms of fungi and decay, including: visual symptoms such as dieback, reduced growth rate and chlorosis, presence of basidiocarps, decayed wounds, hollows and cavities
- field identification of wood decay species of fungi to generic level

- field identification of non-pathogenic fungi species to generic level
- location, size, and condition of wood decay fungi, presence of mycoparasites, and size, condition and extent of hollows and cavities
- environmental characteristics of fungal affected trees: site characteristics, site history, soil conditions, climate and microclimatic variables, proximity of adjacent trees and vegetation, movement of people and vehicles, and potential impacts to assets, property and landscape
- methods of introduction, establishment, spread, and susceptibility of adjacent trees and vegetation
- field sampling techniques of wood decay fungi and mycoparasites
- in-vitro culture of wood decay fungi and mycoparasites
- identification of wood decay fungi and mycoparasites
- methods of decanting and preparing standard laboratory chemicals and materials
- creation of selective culturing media to grow and isolate field samples
- preparation of field samples for culturing on media
- methods of sampling from field samples
- methods of application of samples to growth media
- isolation of clean cultures from primary field cultures
- methods of obtaining clean samples
- preparation of cultured samples
- deoxyribonucleic (DNA) based assay techniques
- documentation of records
- secure storage of digital and physical evidence: field samples, slides, growth media, DNA and cultured samples
- chain of evidence protocols
- preparation of microscope slides of isolated cultures
- identification of cultured fungal samples
- laboratory identification of wood decay fungi to generic level
- digital imaging of identified fungi
- laboratory assay tests for growth rate, temperature range, pathogenicity, and mycoparasitism to evaluate fungal characteristics
- documentation of experimental assay test results
- development and maintenance of culture collections
- methods of submission to relevant government databases and culture collections
- documentation of diagnostic reports
- emergency plant pest (EPP)
- PLANTPLAN guidelines.

## Assessment Conditions

It is an industry requirement that competency in this unit requires the:

- field identification of a minimum of ten (10) wood decay fungi to generic level
- field identification of a minimum of ten (10) non-pathogenic fungi to generic level

- analysis of the lifecycle, biology, ecology and effects of a minimum of ten (10) saprophytic wood decay fungi species
- analysis of the lifecycle, biology, ecology and effects of a minimum of ten (10) pathogenic wood decay fungi species
- laboratory identification of a minimum of five (5) wood decay fungi to generic level.

Assessment must be demonstrated consistently over time in a suitable range of contexts and have a productivity-based outcome. No single assessment event or report is sufficient to achieve competency in this unit.

Assessment may be conducted in a simulated or real work environment, however determination of competency requires the application of work practices under work conditions.

The mandatory equipment and materials used to gather evidence for assessment include:

- equipment:
  - computer
  - word processing software
  - 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
  - laboratory equipment to perform aseptic techniques in a sterile environment
- materials:
  - emergency plant pest diagnostic report

Assessors must satisfy current standards for RTOs in the assessment of arboriculture units of competency.

Assessment must be conducted only by persons who have:

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

## Links

Companion Volume implementation guides are found in VETNet -

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