



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **AHCSDT410A Perform a seed vigour test**

**Release 1**

## AHCSDT410A Perform a seed vigour test

### Modification History

Release	TP Version	Comments
1	AHC10v4	Initial release

### Unit Descriptor

This Unit covers testing for seed vigour to provide information about the seeds' planting value in a wide range of environments and/or the storage potential of seed lots.

### Application of the Unit

This Unit applies to senior seed analysts working within enterprise guidelines. In general, they oversee the preparation of samples for testing; conduct and supervise specified tests in accordance with enterprise requirements; interpret and report results; maintain record-keeping systems; and have responsibility for overall laboratory operations, the supervision of staff, and implementation of quality assurance procedures.

### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

Nil.

### Employability Skills Information

This Unit contains employability skills.

### Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

1. Prepare for a *seed vigour* test
  - 1.1 Test request is reviewed to identify samples to be tested, required *test methods* and equipment.
  - 1.2 Equipment and working space are cleaned and calibrated to enterprise standards.
2. Receive and prepare samples
  - 2.1 Samples are logged using standard operating procedures (SOPs).
  - 2.2 Sample description is recorded, compared with specification and discrepancies reported to supervisor.
  - 2.3 Samples and standards are prepared in accordance with testing method requirements.
  - 2.4 Traceability of samples from receipt to reporting of results is maintained.
  - 2.5 If control samples are being used, ensure they are prepared according to enterprise guidelines (Reinstated MT).
3. Check equipment before use
  - 3.1 Equipment/instruments are set up in accordance with test method requirements.
  - 3.2 Pre-use and safety checks are performed in accordance with relevant enterprise and operating procedures.
  - 3.3 Faulty or unsafe components and equipment are identified and reported to appropriate personnel.
  - 3.4 Equipment calibration is checked using specified standards and procedures, if applicable.
  - 3.5 Out of calibration equipment/instruments is quarantined.
  - 3.6 Reagents required for the test are available and meet quality requirements.
4. Conduct test
  - 4.1 The test method to be used is determined according to the type of seed or as requested by the person requesting the test.
  - 4.2 Equipment is cleaned and maintained in a clean state as required by enterprise guidelines
  - 4.3 A working sample is prepared and replicates using mixing and dividing processes according to enterprise guidelines.
  - 4.4 Seed is prepared, placed and/or treated to suit test method requirements and enterprise guidelines.
  - 4.5 Measurements are made with equipment and/or counting and results are recorded as determined by test method and enterprise guidelines.
  - 4.6 A statement of specific variable is prepared and provided to accompany the results.
5. Evaluate test results
  - 5.1 The number of seeds or seedlings with required characteristics in each replicate is counted.
  - 5.2 The percentage of seed or seedlings with required characteristics in each replicate is calculated and average percentage across all replicates is determined.

- 5.3 Result of seed vigour test is reported to supervisor.
- 6. Process and interpret data
  - 6.1 Test data is recorded noting atypical observations.
  - 6.2 Results are recorded and reported in accordance with enterprise procedures.
  - 6.3 Trends in data and/or results are interpreted and report out of specification or atypical results promptly to appropriate personnel.
  - 6.4 Determine if obvious procedure or equipment problems have led to atypical data or results
- 7. Maintain a safe work environment
  - 7.1 Established safe work practices and personal protective equipment are used to ensure personal safety and that of other laboratory personnel.
  - 7.2 The generation of wastes and environmental impacts are minimised.
  - 7.3 The safe collection of laboratory and hazardous waste for subsequent disposal is carried out.
  - 7.4 Equipment and store equipment and reagents are cleaned and cared for as required.
- 8. Maintain laboratory records
  - 8.1 Approved data is entered into laboratory information management system.
  - 8.2 Confidentiality and security of enterprise information and laboratory data is maintained.
  - 8.3 Equipment and calibration logs are maintained in accordance with enterprise procedures.

## Required Skills and Knowledge

This section describes the skills and knowledge required for this Unit.

### Required skills include:

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#### Ability to:

- interpret test methods and procedures
- carry out sample preparation procedures
- perform calibration checks
- plan work sequences
- designate components of test to other staff
- use calculation methods, including appropriate units, uncertainties, balancing equations, and the concentration of the solution given the chemical reaction for the titration
- record and communicate results in accordance with enterprise procedures
- maintain security, integrity, traceability of samples, sub-samples, test data, results and documentation
- prepare and treat seed for testing
- follow enterprise guidelines and standard operating procedures
- calculate percentages, averages
- evaluate and report results.

### Required knowledge includes:

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#### Knowledge of:

- role of the International Seed Testing Association (ISTA) and the ISTA Rules for Seed Testing
- seed biology
- seed identification
- range of seed vigour testing procedures
- materials and apparatus used in seed vigour testing
- enterprise and/or legal traceability requirements
- relevant health, safety and environment requirements
- enterprise standard operating procedures (SOPs)
- calculations, tolerances and rounding results.

## Evidence Guide

<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this Unit	<p>The evidence required to demonstrate competency in this Unit must be relevant to workplace operations and satisfy holistically all of the requirements of the performance criteria and required skills and knowledge and include achievement of the following:</p> <ul style="list-style-type: none"> <li>• prepare and conduct a seed vigour test</li> <li>• record results</li> <li>• interpret and present results.</li> </ul>
Context of and specific resources for assessment	<p>Competency requires the application of work practices under work conditions. Selection and use of resources for some worksites may differ due to the regional or enterprise circumstances.</p>
Method of assessment	<p>This Unit should be assessed together with core Units and other Units of Competency relevant to the function or work role.</p>
Guidance information for assessment	<p>To ensure consistency of performance, competency should be demonstrated on more than one occasion over a period of time in order to cover a variety of circumstances, cases and responsibilities, and where possible, over a number of assessment activities.</p>

## Range Statement

The range statement relates to the Unit of Competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

<b><i>Seed</i></b> may include:	<ul style="list-style-type: none"> <li>• bare seed; treated seed; and coated seed that has been prepared as required.</li> </ul>
<b><i>Seed vigour</i></b> may include:	<ul style="list-style-type: none"> <li>• rate and uniformity of seed germination and seedling growth;</li> <li>• emergence ability of seeds under unfavourable environmental conditions;</li> <li>• performance after storage including the retention of the ability to germinate.</li> </ul>
<b><i>Test methods</i></b> may include:	<ul style="list-style-type: none"> <li>• stress tests; seedling growth tests; and biochemical tests.</li> </ul>

## Unit Sector(s)

Seed Testing