



Australian Government

AHCSDT408 Perform an electrophoresis test on a seed sample

Release: 1

AHCSDT408 Perform an electrophoresis test on a seed sample

Modification History

Release	TP Version	Comment
1	AHCv1.0	Initial release

Application

This unit of competency describes the skills and knowledge required to test seed by separating proteins of varying size and/or electric charge to get a banding pattern that can be used to identify or verify a particular variety.

It applies to senior seed analysts who analyse information and exercise judgement to complete a range of advanced skilled activities and who demonstrate deep knowledge in a specific technical area. They have accountability for the work of others and analyse, design and communicate solutions to a range of complex problems. All work is carried out to comply with workplace procedures.

No occupational licensing, legislative or certification requirements are known to apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Seed testing (SDT)

Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Prepare seed extraction and gel	1.1 Prepare working sample from submitted sample 1.2 Identify seed to be tested and complete records 1.3 Cut or crush single seeds and transfer to centrifuge tubes 1.4 Add extraction solution and mix with crushed seeds and allow to stand for prescribed period 1.5 Centrifuge tubes and collect and store supernatants

Element	Performance criteria
	1.6 Prepare gel mixture and chemicals and use to achieve required level of polymerisation
2. Carry out electrophoresis	2.1 Place buffer solution in tanks 2.2 Load samples into wells and place gel in tanks 2.3 Carry out electrophoresis at the prescribed voltage and duration 2.4 Maintain temperature as required throughout the process
3. Fix and stain sample	3.1 Remove gel from tank and treat with chemicals as prescribed 3.2 Wash gel and treat to enhance stain 3.3 Examine and/or photograph stain
4. Evaluate stain	4.1 Compare banding pattern with that of an authentic variety or that of a known control sample 4.2 Provide records and reports 4.3 Determine if obvious procedure or equipment problems have led to atypical data or results
5. Maintain a safe work environment	5.1 Use established safe work practices and personal protective equipment 5.2 Minimise the generation of wastes and environmental impacts 5.3 Ensure the safe collection of laboratory and hazardous waste for subsequent disposal 5.4 Care for and store equipment and reagents
6. Maintain laboratory records	6.1 Enter approved data into laboratory information management system 6.2 Maintain confidentiality and security of enterprise information and laboratory data

Foundation Skills

Foundation Skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Unit Mapping Information

This unit is equivalent to AHCSDT408A Perform an electrophoresis test on a seed sample.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for AHCSDT408 Perform an electrophoresis test on a seed sample

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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 that they can:

- extract seed and prepare gel
- centrifuge seed and gel mixes
- interpret stain bands and patterns
- test seed by separating proteins of varying size and/or electric charge
- enter data into laboratory information management system
- maintain confidentiality and security of information and data

Knowledge Evidence

The candidate must demonstrate knowledge of:

- enterprise standard operating procedures (SOPs)
- materials and apparatus used in electrophoresis testing
- principles of electrophoresis
- range of electrophoresis testing procedures
- relevant health, safety and environment requirements
- seed biology
- the role of the International Seed Testing Association (ISTA) and the ISTA Rules for Seed Testing
- using stain patterns and ‘fingerprints’ to determine seed variety

Assessment Conditions

Assessors must satisfy current standards for RTOs.

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