

Title	Propagate plants using tissue culture		
Level	4	Credits	10

Purpose	People credited with this unit standard are able to: maintain hygiene; prepare media; propagate plants using tissue culture; establish, harden off, and dispatch plants; and keep records of propagation by tissue culture.
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Classification	Horticulture > Nursery Production
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Available grade	Achieved
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Entry information	
Recommended skills and knowledge	Unit 20556, <i>Demonstrate knowledge of plant propagation</i> , or demonstrate equivalent knowledge and skills.

Explanatory notes

- 1 *Workplace practices* refers to the way a particular task is carried out on a horticultural property to achieve the desired outcome.
- 2 Legislation relevant to this unit standard includes but is not limited to the Health and Safety in Employment Act 1992, the Resource Management Act 1991, and their subsequent amendments.
- 3 Work may involve exposure to chemical, dangerous, or hazardous substances. Safety procedures are observed in accordance with NZS 8409:2004 *Management of Agrichemicals*, available from Standards New Zealand <http://standards.co.nz>, or the NZ Agrichemical Education Trust <http://growsafe.co.nz>.

Outcomes and evidence requirements

Outcome 1

Maintain hygiene.

Evidence requirements

- 1.1 Containers, instruments, and water are sterilised and stored aseptically in accordance with workplace practices.

- 1.2 Work surfaces are sterilised and maintained in accordance with workplace practices.
- 1.3 Any equipment used to maintain a sterile work area is operated in accordance with workplace practices.

Outcome 2

Prepare media.

Range suitable for the production of three named plant species.

Evidence requirements

- 2.1 Culture media are prepared and added to the containers in accordance with workplace practices.

Outcome 3

Propagate plants using tissue culture.

Range three named plant species.

Evidence requirements

- 3.1 Plant material is sterilised and prepared in accordance with workplace practices.
- 3.2 Embryos, meristems or other plant tissues are removed aseptically.
- 3.3 Explants are placed in the culture medium in accordance with workplace practices.
- 3.4 Containers are placed in the culture room in conditions that encourage cell multiplication.
- 3.5 Where necessary further material is removed from cultures, processed, and placed in the culture room for multiplication.
- 3.6 The culture environment is maintained to optimise culture growth and development including shoot and root growth.

Range temperature, light, humidity, air movement.

Outcome 4

Establish, harden off, and dispatch plants.

Evidence requirements

- 4.1 Propagated material is removed from culture room and hardened off in accordance with workplace practices.

4.2 Conditions are maintained for plant growth and development in accordance with species requirements, buyer specifications, and workplace practices.

Range may include transplanting one or more times into tubes, cells, trays, pots, or planter bags.

4.3 Plants are hardened off, packaged, and dispatched to buyers on time, and in accordance with workplace practices.

Outcome 5

Keep records of propagation by tissue culture.

Evidence requirements

5.1 Propagation material is labelled and identified in accordance with workplace practices.

Range may include plant name, date, and batch number.

5.2 Records of propagation are kept in accordance with workplace practices.

Range may include species and/or cultivar, source of propagation material, collection date, processing date, culture used, culture room conditions, any further culturing dates, root and shoot growth development, hardening off date.

Replacement information	This unit standard replaced unit standard 12405.
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This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 February 2004	31 December 2014
Revision	2	24 February 2006	31 December 2014
Review	3	19 April 2012	31 December 2014

Consent and Moderation Requirements (CMR) reference	0032
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

This unit standard is expiring