

Title	Demonstrate knowledge of genetics, bee breeding programmes, and instrumental insemination of queen bees		
Level	4	Credits	8

Purpose	<p>This unit standard is intended for people working in a queen bee rearing context.</p> <p>People credited with this unit standard are able to: describe genetics in relation to bee breeding; and demonstrate knowledge of the importance of bee breeding programmes and instrumental insemination of queen bees for stock improvement.</p>
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Classification	Agriculture > Apiculture
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Available grade	Achieved
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Guidance Information

- 1 Legislation relevant to this unit standard includes but is not limited to:
 - Health and Safety at Work Act 2015; and any subsequent amendments.
- 2 Definitions

Instrumental insemination is also referred to as artificial insemination.

Workplace procedures refer to the policies and procedures on safety and operation set down by the employer or organisation.
- 3 References

Frost, Elizabeth. *Queen Bee Breeding: Ag Guide – A Practical Handbook*. (NSW Agriculture, 2016).

Rinderer, Thomas E. (Editor). *Bee Genetics and Breeding*. (Academic Press, Orlando, Florida, 1986).

Instrumental Insemination of Honey Bee Queens with Susan Cobey (DVD)
<https://www.youtube.com/watch?v=Csjy020fpyl>.

All references are available from Apiculture NZ, PO Box 25207, Wellington 6146, New Zealand or email info@apinz.org.nz ph + 64 4 471 6254.
- 4 For the purposes of assessment:
 - evidence for Outcome 2 must be presented in accordance with workplace procedures.

Outcomes and performance criteria

Outcome 1

Describe genetics in relation to bee breeding.

Performance criteria

- 1.1 Describe the difference in genetics between female and male bees.
- 1.2 Describe how inherited characteristics are passed from one generation to the next.
- 1.3 Describe the unique features of honey bee reproductive biology and mating behaviour and the tools used to overcome these unique features.
- 1.4 Describe how genetic characteristics can be measured from characteristics of bees and within the hive.
- 1.5 Describe the selection criteria used to measure and select for commercially valuable traits.

Outcome 2

Demonstrate knowledge of the importance of bee breeding programmes and instrumental insemination of queen bees for stock improvement.

Performance criteria

- 2.1 Describe how bee breeding programmes operate to improve breeding stock.
 Range evidence of one New Zealand and one overseas bee breeding programme is required.
- 2.2 Describe the role of instrumental insemination in bee breeding.
- 2.3 Identify steps and the equipment used in the process of instrumental insemination of a queen bee.
 Range evidence of at least fourteen types of equipment is required.

Planned review date	31 December 2025
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 January 2019	31 December 2022
Review	2	24 September 2020	N/A

Consent and Moderation Requirements (CMR) reference

0052

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.