

Title	Describe cattle genetics and selection		
Level	3	Credits	5

Purpose	People credited with this unit standard are able to describe: the principles of genetics as they affect cattle breeding; the identification and recording of traits for cattle breeding purposes; bull selection; and selection of cattle for culling, and wastage of cattle, and calculate the numbers of replacements.
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Classification	Agriculture > Cattle Farming
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Available grade	Achieved
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Guidance Information

Definitions

Culling refers to the removal of cattle in order to improve the performance of the herd.

On-farm breeding procedures refer to the written and verbal instructions for bull selection.

Wastage refers to the removal of cattle due to unplanned reasons such as death.

Wastage results in a negative effect on overall breeding.

Outcomes and performance criteria

Outcome 1

Describe the principles of genetics as they affect cattle breeding.

Performance criteria

- 1.1 Describe genetic gain in terms of its application to cattle breeding and production improvement.
- 1.2 Describe the nature and role of genes and chromosomes in terms of sex determination, heredity, traits, and cell division.
- 1.3 Describe the difference between heredity and environment in terms of their influence on genetic improvement.
- 1.4 Describe the normal distribution curve in terms of its use in breeding programmes.

Outcome 2

Describe the identification and recording of traits for cattle breeding purposes.

Performance criteria

- 2.1 Describe the identification of desirable traits in terms of productive value, ease of management, visual and structural characteristics.
- Range traits must include – temperament, structural soundness; beef cattle traits include but are not limited to – estimated breeding value (EBV), growth rates; dairy cattle traits include but are not limited to – breeding worth, production worth, lactation worth; evidence of either beef cattle or dairy cattle is required.
- 2.2 Describe desirable traits in terms of their measurement and recording.
- Range types, unit and methods of measurement, desirable trait ranges, recording systems.

Outcome 3

Describe bull selection.

Performance criteria

- 3.1 Describe ideal physical features of bulls in accordance with on-farm breeding procedures.
- 3.2 Describe breeding values for bulls in terms of the important features.
- Range values may include but are not limited to – carcass attributes; EBV's: birth weight, reproductive performance, growth rates; evidence of two values is required.
- 3.3 Describe information for bull purchase in terms of the sources available.
- Range sources include but are not limited to – agent or representatives, breeders, publications.

Outcome 4

Describe the selection of cattle for culling, and wastage of cattle, and calculate the numbers of replacements.

Performance criteria

- 4.1 Describe culling and wastage in terms of livestock farming practice.
- 4.2 Describe the effects of culling and wastage of cattle as they influence cattle breeding.
- 4.3 Calculate the number of replacements needed from given culling and wastage figures.

Planned review date	31 December 2027
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 April 2008	31 December 2024
Review	2	24 November 2022	N/A

Consent and Moderation Requirements (CMR) reference	0052
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Muka Tangata - People, Food and Fibre Workforce Development Council qualifications@mukatangata.nz if you wish to suggest changes to the content of this unit standard.