Title	**Describe cheese making in a dairy processing operation**		
Level	**3**	**Credits**	**5**

Purpose	People credited with unit standard are able to describe: the use of starters in cheese making; the basic principles of milk standardisation and coagulation of milk in cheese making; the principles of curd making and moulding of cheese; the basic principles of cheese packaging; and the basic principles of cheese ripening and sensory grading, in a dairy processing operation.

Classification	Dairy Processing > Milk Products

Available grade	Achieved

Guidance Information

Legislation and regulations relevant to this unit standard include but are not limited to:
- Animal Products Act 1999;
- Health and Safety at Work Act 2015;
- Animal Products (Dairy) Regulations 2005;
  and any subsequent amendments.

Outcomes and performance criteria

Outcome 1

Describe the use of starters in cheese making in a dairy processing operation.

Performance criteria

1.1 Describe the use of starters in cheese making in terms of production of the required acidity and flavour compounds for achievement of desired cheese texture and flavour.

Range starters include but are not limited to – lactic, non-lactic.

1.2 Describe the use of starters in cheese making in terms of selection and maintenance of ratios of starter organisms for achievement of desired cheese characteristics.

Range starter organisms may include but are not limited to – mesophilic, thermophilic, mixed strain, single strain;
evidence of two starter organisms is required.

1.3 Describe the use of starters in cheese making in terms of factors affecting the activity of starter cultures.

Range factors may include but are not limited to – inhibitory substances in milk, setting and cooking temperatures, salt levels, bacteriophage; evidence of three factors is required.

Outcome 2

Describe the basic principles of milk standardisation and coagulation of milk in cheese making in a dairy processing operation.

Performance criteria

2.1 Describe the standardisation of milk for cheese making in terms of the adjustment of the casein to fat ratio to achieve product requirements.

Range product requirements include but are not limited to – specified cheese fat in dry matter, moisture in the non-fat solids.

2.2 Describe the type of commercially available coagulants of milk in cheese making in terms of their uses.

Range coagulants include but are not limited to – calf rennet, bovine rennet, microbial rennet.

2.3 Describe the basic principles of coagulation of milk in cheese making in terms of the mechanism of rennet coagulation.

Range principles include but are not limited to – enzymatic phase, coagulation phase.

2.4 Describe the basic principles of coagulation of milk in cheese making in terms of factors influencing the rate and degree of coagulation.

Range factors include but are not limited to – coagulant dosage, coagulation temperature, coagulation time.

Outcome 3

Describe the principles of curd making and moulding of cheese in a dairy processing operation.

Performance criteria

3.1 Describe influences on cheese characteristics in terms of cutting the coagulum, stirring, cooking, and whey drainage.

3.2 Describe factors affecting cheese characteristics in terms of compression, stretching and curd matrix formation.

3.3 Describe differences in salt uptake and dispersion in terms of dry and brine-salted cheeses.

Outcome 4

Describe the basic principles of cheese packaging in a dairy processing operation.

Performance criteria

4.1 Describe the basic principles of cheese packaging in terms of packaging requirements of cheese.

Range requirements include but are not limited to – biologically active, biologically inactive.

4.2 Describe the basic principles of cheese packaging in terms of permeability requirements of cheese types.

Range cheese types may include but are not limited to – medium, hard, smeared, mould-ripened, washed rind;
evidence of two cheese types is required.

4.3 Describe the basic principles of cheese packaging in terms of functions of packaging materials.

Range packaging materials may include but are not limited to –aluminium foils, plastic bags, wax paper wraps, coating agents, cans, cartons;
evidence of three packaging materials is required.

Outcome 5

Describe the basic principles of cheese ripening and sensory grading in a dairy processing operation.

Performance criteria

5.1 Describe the basic principles of cheese ripening in terms of factors influencing the ripening process.

Range factors include but are not limited to – temperature, time, humidity, cheese micro-flora, proteolysis, lipolysis.

5.2 Describe sensory grading in terms of the basic principles.

Range basic principles include but are not limited to – sample preparation, sample conditioning, order of sensory assessment, methods of achieving consistency between graders;
sensory grading includes but is not limited to – finish, texture, colour, body, flavour.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	22 June 1995	31 December 2012
Review	2	5 July 1999	31 December 2012
Review	3	26 August 2002	31 December 2012
Revision	4	13 June 2003	31 December 2012
Rollover	5	17 July 2009	31 December 2012
Review	6	17 May 2012	31 December 2016
Review	7	18 June 2015	31 December 2024
Review	8	25 March 2021	N/A
Revision	9	26 January 2023	N/A

Consent and Moderation Requirements (CMR) reference	0022

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

Comments on this unit standard

Please contact the Hanga-Aro-Rau Manufacturing, Engineering and Logistics Workforce Development Council qualifications@hangaarorau.nz if you wish to suggest changes to the content of this unit standard.