GOVERNMENT NOTICES

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

No. 933 **2 October 2009**

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

In accordance with Regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Food

registered by Organising Field 06 – Manufacturing,Engineering and Technology, publishes the following Qualification and Unit Standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the Qualification and Unit Standards. The full Qualification and Unit Standards can be accessed via the SAQA web-site at **www.saqa.org.za**. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, SAQA House, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the Qualification and Unit Standards should reach SAQA at the address below and ***no later than 2 November 2009.*** All correspondence should be marked **Standards Setting – SGB for Food** and addressed to

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SOUTH AFRICAN QUALIFICATIONS AUTHORITY

QUALIFICATION:
National Certificate: Dairy Primary Processing

SAQA QUAL ID	***QUALIFICATION TITLE***		
74250	National Certificate: Dairy Primary Processing		
ORIGINATOR		***PROVIDER***	
SGB Food			
QUALIFICATION TYPE	***FIELD***	***SUBFIELD***	
National Certificate	6 - Manufacturing, Engineering and Technology	Manufacturing and Assembly	
ABET BAND	***MINIMUM CREDITS***	***NQF LEVEL***	***QUAL CLASS***
Undefined	120	Level 3	Regular-Unit Stds Based

This qualification replaces:

Qual ID	Qualification Title	NQF Level	Min Credits	Replacement Status
50024	National Certificate: Dairy Primary Processing	Level 3	120	Will occur as soon as 74250 is registered

PURPOSE AND RATIONALE OF THE QUALIFICATION
Purpose:

The purpose of this qualification is to ensure that the person who performs dairy primary processing can accurately operate the relevant equipment, solve related problems and evaluate the quality of the processed product. The primary processing of raw milk, cream or fruit-milk mixtures is the preliminary step to the manufacturing of almost all dairy or dairy containing products. The skills and knowledge of primary processing are therefore seen as vital to ensure good quality and safe end products.

A person acquiring this qualification will be able to apply primary processing technologies to milk, cream or fruit-milk mixtures. These products will be safe for human consumption; quality assured and comply with minimum legislation.

Primary processing technologies refer to:

- Pasteurisation, vaccreation or thermisation.
- Cream separation and standardisation.
- Homogenisation.

Generic competencies such as cleaning and sanitising of the primary processing system will also be obtained. The person will be able to apply all relevant personal safety and food safety practices during the performance of his/her tasks.

This qualification will allow a person to have access to education, training and career paths within the dairy industry, ensuring learning mobility and progression on the framework through articulation with other qualifications. This qualification will enhance the social, economic and personal development of the learner, as well as the sustainability and productivity of the dairy

industry. The qualification will accelerate the redress of past unfair discrimination in education, training and employment opportunities.

Rationale:

This qualification reflects the workplace-based needs of the dairy industry that are expressed by employers and employees, both now and for the future. Typical learners would be persons who are currently working in a dairy primary processing environment who have not received any formal recognition for their skills and knowledge, as well as workers that are progressing from a milk or cream reception environment to a dairy primary processing environment. Learners may also include new entrants to the dairy manufacturing industry.

This qualification is a reviewed and updated version of the similar qualification developed by the dairy industry in 1990, as a result of the demand in the dairy industry for national recognition for workers in a dairy primary processing environment. This former qualification in dairy primary processing was registered with Department of Labour from 1990-1998, where after it was registered on the NQF as an integral part of the interim registered dairy qualifications on Level 4, especially the National Certificate: Fresh Dairy Product Preparation (NLRD 17282). The first version of the unit standards based National Certificate in Dairy Primary Processing NQF Level 3 was registered on the NQF in 2001 and this qualification serves as the revised version thereof.

This qualification provides the learner with the skills and knowledge necessary to be employed in different careers within the dairy industry, including small, medium and micro enterprises, as well as in other food industries. The range of electives will allow the individual to pursue a career within dairy primary processing, packaging, laboratory analysis or quality assurance. Skilled workers are one of the key players in better manufacturing standards and productivity, which may increase business prosperity. This qualification will assist in social and economic transformation.

The secondary focus of the qualification is on food safety and quality control and therefore this qualification will contribute to the establishment of workplace competencies that will ensure food products that are healthy and safe for human consumption.

RECOGNIZE PREVIOUS LEARNING?
Y

LEARNING ASSUMED IN PLACE
It is assumed that learners are already competent in the following at NQF Level 2:

- Communication.
- Mathematical literacy.
- Natural science and technology principles.

Recognition of Prior Learning:

This qualification may be achieved in part or completely through the recognition of prior learning, which includes formal, informal and non-formal learning and work experience.

Access to the Qualification:

- Open access.

QUALIFICATION RULES
- All the Fundamental Unit Standards (36 Credits) are compulsory.

- All the Core Unit Standards (64 Credits) are compulsory.

- A minimum of 20 Credits is to be selected from the Electives.

- Total for the qualification: 120 Credits.

EXIT LEVEL OUTCOMES

1. Apply fundamental processing technologies to milk, cream or fruit-milk mixtures.

2. Perform quality control practices during primary processing of milk, cream or fruit-milk mixtures.

3. Contribute to quality assurance procedures during primary processing of milk, cream or fruit-milk mixtures.

Critical Cross-Field Outcomes:

While performing laboratory functions, qualifying learners can:

1. Identify and solve problems in which response displays that responsible decisions, using critical and creative thinking, have been made by:

- Problem solving during primary processing, packaging and quality control.

Evident in all Exit Level Outcomes.

2. Work effectively with others as a member of a team, group, organisation or community by:

- Applying team-work during primary processing and packaging.

Evident in all Exit Level Outcomes.

- Co-ordinating one`s work with that of others in the direct surrounding area.

Evident in all Exit Level Outcomes.

3. Organise and manage oneself and one`s activities responsibly and effectively by:

- Planning one`s activities.

Evident in all Exit Level Outcomes.

4. Collect, analyse, organise and critically evaluate information by:

- Keeping records of primary processing and packaging.

Evident in the following Exit Level Outcomes:

- Apply fundamental processing technologies to milk, cream or fruit-milk mixtures.
- Perform quality control practices during primary processing of milk, cream or fruit-milk mixtures.

- Analysing samples and evaluating the results.

Evident in the following Exit Level Outcomes:

• Apply fundamental processing technologies to milk, cream or fruit-milk mixtures.
• Contribute to quality assurance procedures during primary processing of milk, cream or fruit-milk mixtures.

5. Communicate effectively by using mathematical and/or language skills in the modes of oral and/or written presentations by:

• Keeping records and noting results.

Evident in the following Exit Level Outcomes:

• Apply fundamental processing technologies to milk, cream or fruit-milk mixtures.
• Perform quality control practices during primary processing of milk, cream or fruit-milk mixtures.

6. Use science and technology effectively and critically, showing responsibility towards the environment and health of others by:

• Working according to health and safety regulations.

Evident in all Exit Level Outcomes.

7. Demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation by:

• Problem solving during primary processing, packaging and quality control.

Evident in all Exit Level Outcomes.

8. Contribute to the full personal development of each learner and the social and economic development of the society at large by:

• Performing primary processing.

Evident in the following Exit Level Outcomes:

Apply fundamental processing technologies to milk, cream or fruit-milk mixtures.

• Packaging the product.

Evident in the following Exit Level Outcomes:

• Perform quality control practices during primary processing of milk, cream or fruit-milk mixtures.

• Performing quality control practices.

Evident in the following Exit Level Outcomes:

• Contribute to quality assurance procedures during primary processing of milk, cream or fruit-milk mixtures.

ASSOCIATED ASSESSMENT CRITERIA
Associated Assessment Criteria for Exit Level Outcome 1:

• Knowledge and comprehension regarding heating and cooling media and procedures for primary processing of the product are applied according to standard dairy principles.
• Milk, cream or fruit-milk mixtures are pasteurised according to standard operating procedures.
• Cream is separated according to standard operating procedures.
• Milk, cream or fruit-milk mixtures are standardised according to standard operating procedures.

Associated Assessment Criteria for Exit Level Outcome 2:

• Quality control practices are performed for the primary processing of milk, cream or fruit-milk mixtures according to standard operating procedures.
• The processed milk, cream or fruit milk mixture is analysed for sensory attributes according to standard operating procedures.
• The phosphate test is performed on the processed product to determine efficiency of pasteurisation.

Associated Assessment Criteria for Exit Level Outcome 3:

• Knowledge and comprehension of the concept of microbiology and the effect of micro-organisms on personal health, hygiene and dairy product safety are applied according to standard dairy microbiology principles.
• Knowledge and comprehension regarding the nature of milk and its intended uses are applied according to standard dairy principles.
• Quality assurance procedures are adhered to through performing quality control practices according to standard operating procedures.

Integrated Assessment:

The applied competence (practical, foundational and reflexive competencies) of this qualification will be achieved if a learner is able to apply primary processing technologies on milk, cream or fruit-milk mixtures. These products will be safe for human consumption, quality assured and complying with minimum legislation.

The identifying and solving of problems, team work, organising one-self, the using of applied science, the implication of actions and reactions in the world as a set of related systems must be assessed during any combination of practical, foundational and reflexive competencies demonstrated. Assessment methods and tools must be designed to determine the whole person development and integration of applied knowledge and skills.

Applicable assessment tool(s) must be used to establish the foundational, reflexive and embedded knowledge applied to solve problems.

Assessors should develop and conduct their own integrated assessment by making use of a range of formative and summative assessment methods and should assess combinations of practical, applied, foundational and reflexive competencies. Assessors should assess and give credit for the evidence of learning that has already been acquired through formal, informal and non-formal learning and work experience.

The primary processing techniques can be assessed in one application.

INTERNATIONAL COMPARABILITY

The following leading dairy producing countries all support and implement vocational training and education, but not on a structured qualifications framework as found in South Africa:

• Germany.
• France.

- Netherlands.
- Switzerland.
- Denmark.
- Sweden.
- United States of America.

With regards to vocational training and education, most of these countries implement decentralised and market-orientated programmes, both in technical and commercial training.

In Europe in general, the Society of Dairy Technology (SDT) in the United Kingdom in conjunction with the European Dairy Technology Diploma Holders Association (AEDIL) and the Dairy Industry Association (DIAL) worked together to formulate a pan-European initiative to issue Vocational Education Passports giving details of the holder's qualifications and experience in the dairy field. This was designed to assist both employers and employees. In Europe, it facilitates the movement of labour from one country to another, which is of increasing importance as dairy companies consolidate.

In Germany, for instance, although no information could be found about specific vocational training towards dairy primary processing similar to this South African qualification, a very pertinent vocational training system is implemented. When leaving schools, 70% of German students take a course of vocational training, mostly within their so-called "dual system". This system combines practical, on-the-job training with theoretical instruction at a part-time vocational school. Through their close cooperation, private business, industry and the public sector are sharing responsibility: Training regulations are drawn at federal level, while the states oversee the vocational schools. There are three types of vocational schools in Germany:

Part-time vocational schools (Berufsschulen):

In the dual system, the vocational schools complement the training received in a company. Trainees attend a part-time vocational school one or two days a week for three years. The schools teach general subjects and theories that are easier understood in the classroom than at work. Usually about 40% of the school work is in basic academic subjects such as languages, mathematics and sciences and about 60% in subjects directly related to the chosen profession. Performance is assessed in an exam and documented by a certificate issued mostly by the chamber of industry and commerce.

The full-time vocational school (Berufsfachschule):

This school offers courses lasting one to three years. These can be part of an apprenticeship or even replace an apprenticeship entirely.

The vocationally oriented upper secondary school (Fachoberschule):

This school admits students with an intermediate school certificate. Courses cover theoretical instruction as well as training workshops and on-the-job training. They generally last two years and qualify participants for the specialised college (Fachhochshule).

On-the-job training (apprenticeships), last between two and three and a half years, depending on the complexity of the occupation. During this period, the apprentice earns a training allowance. The professional requirements that have to be learned during the vocational training are spelled out in training regulations. Based on proposals from the business associations and trade unions, these regulations are regularly revised and updated. The training concludes with an examination conducted by a board of examiners, generally organised by the local chamber of industry and commerce. On the board of examiners are representatives of employers as well as vocational school teachers.

Although no company is obliged to provide training, over 500 000 firms in all branches of the economy, including the independent professions and the public service, provide vocational training. Larger enterprises have their own training workshops, but smaller firms train their apprentices right on the job. Very specialised firms pool their resources and send their apprentices to inter-company training centres in order to broaden their vocational skills.

The above system therefore compares well with the NQF based education and training system of our country.

Higher education towards Dairy Technology in Germany is presented at state of the art universities, for instance the Technical University of Munich. These courses, however, focus mainly on high level food process engineering and dairy research and development, other than the focus of this South African qualification.

The West part of France, with 50% of the national milk collection and 10% of the European milk production is the first French dairy area and one of the largest in Europe. The European Centre for Dairy Research and Training (ECDaiRT or CEREL) is a stakeholder that plays a major role in training in development in the dairy sector of France. It was established in 2001 and is a network of public research teams consisting of research staff and technical staff. By integrating and structuring the research sector, the extension services, the industry, the education and the public information in a multidisciplinary approach (from the herds and the farms to the dairy processing industries and the consumers), CEREL has the following emphasising aims:

- Developing new strategies of milk production and milk processing.
- Knowledge and scientific support.
- Education and training programmes tailored to disseminate knowledge ad expertise towards milk producers and processing industries.

CEREL brings together all the actors involved in the milk and dairy chain of the West of France, namely:

- Institute of National Research in Agriculture (INRA).
- Ecole Nationale Supérieure Agrinomique de Rennes (ENSAR).
- Ecole Nationale Supérieure Agrinomique de Toulouse (ENSAT).
- Centre National du Machinisme Agricole, du Génie Rural, des Eaux et des Forêts (CEMAGREF).
- Institut de l'Elevage.
- ITG Ouest.
- University of Renne, specialising in Ultrafiltration and Nanofiltration training.
- Centre National Interprofessionnel de l'Economie Laitière (CNIEL).
- Regional Chamber of Agriculture in Britain.
- British Biotechnology Alumni (BBA).

No specific dairy training programmes in France could be found at the time when this international comparability study was conducted.

In the Netherlands, dairy training courses from PTC+ were found. PTC+ is an international training centre in Netherlands which focuses on high-quality training in the field of agriculture, dairy technology and dairy production. The first three of the following courses compared well with this South African qualification, although not unit standards based:

- Module on Production of Dairy Products-A two week short course for managers, production managers, staff, consultants, trainers government officials involved in small- to medium-scale dairy enterprises. The course covers the production of liquid milk products such as pasteurised milk, yoghurts, whey drinks, yoghurt drinks, as well as butter, fresh-, soft-, medium-hard and

hard-cheese. It does not include the manufacturing of evaporated milk, sweetened condensed milk and milk powders, but this can be arranged on request.

• International Diploma in Dairy Husbandry and Milk Processing-A 26 week course for persons who contribute through teaching, training, extension and/or management activities directly or indirectly to the development of the dairy sector. The course covers training and extension, dairy farm management and small-scale milk processing.

• International Training Programme on Milk Processing-A two, four or six week course, depending on the modules chosen. This course is intended for managers, staff of training institutes, staff of advisory services and future staff of new dairy enterprises. It covers milk procurement, production of dairy products and business administration, marketing and quality management. Each module can be attended as a "stand-alone". This course compares well with the South African Dairy qualifications, since it covers the following:
o Milk Procurement (Composition and characteristics of milk, milking systems and storage of milk on the farm, milk collection, transport and reception, storage of raw milk at the plant, quality control tests on raw milk, payment of raw milk, cleaning and sanitising, yoghurt production).
o Production of Dairy Products (Pasteurised milk, yoghurts, whey drinks, yoghurt drinks, butter and cheese). It does not include the manufacturing of evaporated milk, sweetened condensed milk and milk powders, but this can be arranged on request. The programme may be adapted to the specific needs of the participants.
o Business Administration, Marketing and Quality Management (Financial administration of a dairy plant, marketing plans, quality management systems, food safety and hygiene audits, HACCP).

• Module on Business Administration, Marketing and Quality Assurance-A two week short course for managers, quality assurance managers, marketing managers, quality assurance staff, business administration and marketing staff, consultants, trainers and lecturers active in the dairy sector. Topics cover financial administration of a dairy plant, marketing plans, quality management systems and food safety and hygiene audits.

In Switzerland, the Dairy Processing Technology Department of the Swiss College of Agriculture in Zollikofen, in collaboration with the Swiss Federal Dairy Research Station and the University of Applied Sciences in Bern provides the following two courses, however not relating well with this South African qualification:

• Food Technology, specialising in Dairy Processing-This course covers dairy and food processing technology, as well as dairy business and management that will prepare candidates for challenging positions in the executive level in the dairy and food industry. In applied research and development, projects are carried out in collaboration with the dairy industry and other partners such as the Swiss Federal Dairy Research Station. Post-formation courses allow professionals to keep up to date evolving knowledge.

• Cheesemaking Technology-A three week course in the theory and practice of cheese manufacturing, including experience sharing with the Swiss cheese industry. Topics include milk quality, cultures, coagulation, cheesemaking process, brining/salting, ripening, storage, cheese types (fresh, quark, cottage, Pasta Filata, Feta, soft, Cheddar, processed, Ricotta, analogues, cheese made from milk of other animals), UHT, ultrafiltration, microfiltration and nanofiltration. Trained cheesemaking experts facilitate the training.

Denmark offers a long line of dairy-related educations. These multi-level educations are made available by the Danish Dairy Board, Dalum Education Centre, the Royal Danish Veterinary and Agricultural University and the Technical University of Denmark.

In Denmark great importance is attached to providing vocational training with an international perspective. Therefore, young Danish students are urged and supported to carry out a trainee period abroad.

Vocational training in Denmark is organised so that practical training and theoretical training alternate. This combination of theoretical training at a vocational school and work experience in a company apply for all vocational educations in Denmark.

Skilled Dairyman and Dairy Operator:

The practical part of the education may partly take place in companies outside Denmark (EU and Norway, Iceland, Switzerland and Liechtenstein). The content and structure of the dairy educations are laid down by the professional committee in accordance with Danish legislation.

The dairy education takes 3 years-normally with 50 weeks of theoretical training and 106 weeks of practical training. It is possible to complete an education as a qualified dairy operator after 1½ years. The dairy operator education consists of 30 weeks of theoretical training and 48 weeks of practical training.

The student can be credited for any relevant education or previous occupation essentially identical to the goals of the educations as dairyman or dairy operator.

It is the aim of the dairy educations that the skilled dairyman can undertake tasks of a technical nature within the dairy field such as:

- Carry out manual and automated operative functions according to current rules and regulations.
- Carry out the work in accordance with the quality control and other control systems of the company.
- Show insight and understanding related to the environmental conditions of the working area.
- Be able to work closely together with other professions.
- Obtain qualifications to develop skills through work and in-service training.

For the skilled dairyman the aim is furthermore to combine knowledge of the technical, the microbiological, physical and chemical conditions of dairy products with planning, documentation and quality evaluation of the tasks connected to the manufacturing of dairy products.

Theoretical training:

The theoretical training consists of:

- Basics (first aid, hygiene, information technology, environmental studies, health, economy, English, physics, chemistry and mathematics), a total of 16 weeks.
- Area studies (knowledge of the trade, dairy production, company organisation and quality consciousness, quality of production and equipment), a total of 19 weeks.
- Special subjects (dairy technology, processing and optional special subjects), a total of 9 weeks.
- Optional subjects, a total of 6 weeks.

Practical training:

The practical training covers the following work areas and functions:

- Reception of raw material, pasteurisation and standardisation of milk.
- Preparation of production machinery for operation.
- Operation and regulation of production equipment.

- Production and quality control.
- Working with single processes in the production - mainly tasks of handling, cleaning and transport.
- Laboratory work and administrative tasks supplementing the work in the production.

The Danish dairy company is responsible for the practical part of the education and also for the period abroad in order to make the international work experience an integrated part of the whole education.

At the end of the trainee period the mentor will be asked to fill out a summary of the work functions which the apprentice has carried out during his/her stay.

Depending on the length of the trainee period it may be necessary for the apprentice to attend a school period at Dalum Education Centre, College of Food and Technology in Denmark. During such periods the apprentice will receive his/her wages from the Danish company.

Although broader in nature, this Danish course covers most of the topics that are addressed in this South African qualification.

Danish Dairy Training Programme:

The Danish Dairy Training Programme is an offer from the Danish Dairy Board to young dairy industry employees. The training is based on a period of work in a dairy outside Denmark for 3-12 months. The training period is designed to offer experience and insight into dairy production in dairy companies outside Denmark, personal development and improved language skills. These are all valuable qualifications for a young graduate who is applying for work in Denmark or abroad.

Courses in Denmark on Higher Education level include the following:

- Dairy Engineering-Presented by the Technical University of Denmark.
- Master of Science in Dairy Technology-A two-year academic programme offered in collaboration between the Royal Veterinary and Agricultural University and the Technical University (Denmark) and Lund University (Sweden).
- Processing Technologist (Dairy Technology)-A two-year education to become a processing technologist, available from Dalum Education Centre.

A lot of the dairy training offered by Sweden is done in collaboration with Denmark. Up till 2004, Sweden did not have any programmes specifically targeting the dairy sector. A number of Swedish dairy manufacturing industries have recognised the need for training their employees, and have since started to formalise specific dairy training programmes. None of these could, however, be found at the time when this international comparability study was conducted.

Also, no specific dairy training programmes in the United States of America could be found at the time when this international comparability study was conducted.

With regards to Africa, South Africa is by far the leading dairy producing country. Evidence was found of in-house dairy training courses presented in countries like Botswana, Mozambique, Namibia, Kenya, Lesotho and Swaziland, however, these are mostly initiated and funded by South African dairy manufacturing organisations and research facilities, as well as by international stakeholders like the Food and Agriculture Organisation of the United Nations (FAO). Independent African comparable courses could not be found.

Training programmes and best practices in dairy processing and manufacturing were compared for the following leading countries, which all implement a qualifications framework system:

- New Zealand.
- Australia.
- England, Wales and Northern Ireland.
- Scotland.

At the New Zealand Qualification Authority (NZQA), five qualifications exist at Levels 3 and 4 for dairy processing, namely:

- National Certificate in Dairy Manufacturing (Process Skills) Level 3, with strands in Processing and Supply Chain (and with optional strands in Performance Improvement and Product Safety).
- National Certificate in Dairy Manufacturing (Technology) Level 3, with an optional strand in Process Improvement.
- National Certificate in Dairy Manufacturing (Workplace Safety) Level 3.
- National Certificate in Dairy Manufacturing (Process Skills) Level 4, with optional strands in Product Safety and People Skills.
- National Certificate in Dairy Manufacturing (Technology) Level 4, with strands in Food Safety, Process Improvement, Process Testing and Product Skills.

The following key skills are covered in the above-mentioned qualifications:

- National Certificate in Dairy Manufacturing (Process Skills) Level 3, with strands in Processing and Supply Chain (and with optional strands in Performance Improvement and Product Safety)-Intended for experienced employees working under general supervision and applies to process operations and supply chain staff in all branches of the industry:
  - Product safety.
  - Quality systems.
  - Occupational health and safety.
  - Environmental management.
  - Productivity.
  - Dairy laboratory methodology.
  - Dairy people skills.
  - Dairy supply chain.
  - Dairy technology (maintenance tasks and steam generation).
  - Dairy processing (homogenisation, heat treatment, centrifugal separation, membrane separation, cooling, bulk liquid transfer, cleaning and sanitising, mixing and blending, colouring and flavouring, packaging, butter manufacturing, cheese manufacturing, fermented products manufacturing, ice cream manufacturing, evaporation, drying, distillation, lactose treatment).
  - Dairy product safety and risk management.
- National Certificate in Dairy Manufacturing (Technology) Level 3, with an optional strand in Process Improvement-Intended for new employees in the dairy manufacturing industry and recognises an intermediate level of technical competence, or experienced employees with an underpinning knowledge of a range of products and processes associated with the dairy manufacturing industry:
  - Environmental management.
  - Dairy laboratory methodology.
  - Dairy product safety and risk management.
  - Dairy quality and process improvement.
  - Dairy manufacturing technology (UHT products, cultured dairy products, processed cheese, frozen milk products, milk production, milk collection and reception, heat transfer and heat treatment, cream products, liquid products, evaporation and spray drying, milk protein products, cheese making, whey processing, packaging, marketing, automation, membrane technology, critical control points).
- National Certificate in Dairy Manufacturing (Workplace Safety) Level 3-Designed for all dairy industry personnel for attaining a high level of dairy industry workplace health and safety competency:
  - Occupational health and safety.

- Environmental management.
- Dairy people skills.
- Dairy product safety and risk management.
- Dairy technology (fundamentals of dairy mechanics, engineering, automation and electrical concepts).
- Fire fighting.
- Health studies.
- Monitoring of energy.
- Safety and legislation.
- Humanities.
- Law and security.
- Forklift driving.

• National Certificate in Dairy Manufacturing (Process Skills) Level 4, with optional strands in Product Safety and People Skills-Intended for experienced employees working with limited supervision in a dairy processing environment:
- Dairy quality systems.
- Dairy people skills.
- Dairy processing systems and temperature control.
- Dairy products safety and risk management.
- Dairy workplace health and safety.
- Interpersonal communication.
- Productivity, statistics and problem solving.
- Delivery of adult education/instruction and assessment of learning.
- Dairy environmental management.

• National Certificate in Dairy Manufacturing (Technology) Level 4, with strands in Food Safety, Process Improvement, Process Testing and Product Skills-Designed for experienced operations staff who require more in-depth technical knowledge than that provided by the National Certificate in Dairy Manufacturing (Process Skills) Level 4, and is a follow-up on the National Certificate in Dairy Manufacturing (Technology) Level 3:
- Dairy people skills.
- Dairy product safety and risk management.
- Dairy technology (mechanics, electrical concept, energy, centrifugal separation, heat treatment/transfer and critical control points, process control, separation and standardisation, evaporation, butter making, anhydrous milk fat, casein and caseinate products, membrane processing, cheese making, processed cheese, cream products, lactose products, spray drying, fermentation, distillation).
- Health and safety.
- Dairy laboratory methodology.

It therefore seems as if most of the New Zealand qualifications have combined the skills of milk reception, dairy primary processing, dairy laboratory analysis and dairy product manufacturing into a single qualification with the aim at specific job descriptions. On the other hand, the South African model allows for four different, much more detailed and custom-made qualifications, which focus on the required skills, rather than on the job-description.

Also, the New Zealand qualifications focus strongly on people skills and management. These skills are addressed in the Level 5 South African National Certificate in Manufacturing Management (NLRD 49743).

The Australian Qualifications Framework (AQF) contains a qualification (Certificate III) in Food Processing, which consists of core, specialist and optional units.

Specialist units relating to dairy primary processing include the following:

- Raw material knowledge.
- Setting up a production line.

- Operating processes in a production line.
- Cleaning and sanitising.
- Materials handling (cooling, temperature control, bulk liquid transfer, loading and unloading tankers).
- Packaging.
- Homogenising.
- Separation.
- Pumping.
- Holding and storage.
- Preparation and mixing.
- Production and process control.
- Heat treatment.

Other specialist units also cover bulk milk transfer, dairy product manufacturing and packaging. Clearly the above-mentioned qualification does not focus entirely on dairy primary processing, but provides a broader option on Level 3. Optional units around quality, good manufacturing practices and problem solving compares well with this South African qualification.

On the National Qualifications Framework (NQF) of England, Wales and Northern Ireland, a wide range of vocational qualifications (VQs) are accredited. These qualifications range from broad-based VQs to specialist qualifications designed for a particular sector. In partnership with the Learning and Skill Council (LSC) and the Sector Skills Development Agency (SSDA), the Qualifications and Curriculum Authority (QCA) in England has a remit to extend the take-up of VQs. In line with the more flexible school curriculum, this included their use by more 14-to 19-year olds.

National vocational qualifications (NVQs) are work-related, competence-based qualifications. They reflect the skills and knowledge needed to do a job effectively, and show that a candidate is competent in the area of work the NVQ represents. NVQs are based on national occupational standards, similar to the unit standards applied in South Africa.

In terms of NVQs, dairy processing and manufacturing technology forms part of the City and Guilds Food Manufacturing Qualifications (dairy manufacturing is one of the specialised routes), which replace the former NVQ in Food and Drink Manufacturing Operations on Levels 1-3. The structure of the qualifications will be in the form of an award (1 unit), certificate (2 units) and diploma (3 units) for both levels 2 and 3. This will mean that employers who may not want their working candidates in college for too long will be able to offer a VQ possibly as a short course (e.g. the certificate route) which underpins the NVQ.

Although there are no specific units that cover dairy primary processing, there are strong overlaps between the City and Guilds qualifications and this South African qualification, namely:

- Dairy science and technology.
- Production of liquid milk products.
- Workplace safety.
- Monitoring food safety.
- Food science and technology in manufacture.
- Quality assurance in food manufacture.
- Product design and technology in food manufacture.

The City and Guilds qualifications on both Levels 2 and 3 focus more or less on the same areas, although the qualifications on Level 3 provides an extra focus on monitoring and control procedures, as well as on quality assurance. Although some overlap exists between the UK and South African qualifications with regard to quality control, none of the mentioned NVQs provide access to training in specific dairy primary processing skills.

The Scottish Vocational Qualifications (SVQs) provide two qualifications in Food Manufacture, namely one in Production Control Skills on Level 2 and one in Specialist Technical Skills on Level 3. It consists of mandatory and optional units.

Level 2:

Dairy-related optional units include the following:

- Production specifications.
- Reporting and recording.
- Task hand-over and changeovers.
- Product control.
- Weighing, mixing and batching.
- Heat treatment.
- Separation.
- Temperature control.
- Packaging.
- Planning your activities.
- Team work.
- Quality control and quality assurance.
- Maintenance.
- Materials handling.
- Manual cleaning and cleaning-in-place (CIP).
- Continuous improvement.
- Problem solving.
- Start-up and shut-down procedures.

Level 3:

Optional units, although not directly dairy-related, include the following:

- Self-management.
- Monitoring food safety at critical control points.
- Monitoring health, safety and environmental systems.
- Monitoring product quality.
- Sampling for quality control.
- Testing for quality control.
- Monitor and control quality.
- Monitor and control throughput.
- Continuous improvement in food safety.
- Quality audits.
- Evaluate and improve production.
- Raise food safety awareness.
- Environmental good practice.
- Maintenance of plant and equipment.
- Develop test samples.
- Develop product specifications.
- Develop and implement operational plans.

The first of these two Scottish qualifications therefore shows specific overlap with this South African qualification, while the second qualification focuses on quality management, food safety, continuous improvement and other management areas. This management focus in the Scottish qualification is reflected in the Level 5 South African National Certificate in Manufacturing Management (NLRD 49743).

Summary:

The countries that formed part of this comparability study have high quality, sophisticated food processing industries as well as a large dairy component in their agricultural sector. Training provided to workers in these sectors is of a very high calibre and forms a good basis for comparison for this South African qualification. The comparisons done above with appropriate qualifications from those countries, shows that the competencies developed in this qualification are well aligned internationally, even though the main focus of each is slightly different.

ARTICULATION OPTIONS

This qualification articulates vertically with the Further Education and Training Certificate in Dairy Manufacturing Technology (ID 50306) with the following specialisations:

- Ripened cheese.
- Cottage cheese.
- Processed cheese.
- Fermented dairy products.
- Dried dairy products.
- Liquid long life dairy products.
- Sweetened condensed milk.
- Butter and butter related spreads.
- Frozen ice cream and frozen ice cream related products.

This qualification articulates horizontally with the following qualifications:

- National Certificate in Food and Beverage Packaging, NQF Level 3 (ID 20507).
- National Certificate in Food Laboratory Analysis, NQF Level 3 (ID 50305).

MODERATION OPTIONS

- Anyone assessing a learner or moderating the assessment of a learner against this qualification must be registered as an assessor with the relevant ETQA, or with another ETQA that has a Memorandum of Understanding with the relevant ETQA.

- Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant ETQA, or with another ETQA that has a Memorandum of Understanding with the relevant ETQA.

- Assessment and moderation of assessment will be overseen by the relevant ETQA, or by another ETQA that has a Memorandum of Understanding with the relevant ETQA, according to the ETQA`s policies and guidelines for assessment and moderation.

- Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards, exit level outcomes and the integrated competence described in the qualification.

- Anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution that is accredited by the relevant ETQA.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

For an applicant to register as an assessor, the following are essential:

- Must be registered as an assessor with the relevant ETQA, or with another ETQA that has a Memorandum of Understanding with the relevant ETQA.
- Should have a similar qualification to this one at NQF Level 4 or higher, with a minimum of 12 months field experience.

NOTES

This qualification replaces qualification 50024, "National Certificate: Dairy Primary Processing", Level 3, 120 credits.

UNIT STANDARDS

	ID	UNIT STANDARD TITLE	LEVEL	CREDITS
Fundamental	119472	Accommodate audience and context needs in oral/signed communication	Level 3	5
Fundamental	9010	Demonstrate an understanding of the use of different number bases and measurement units and an awareness of error in the context of relevant calculations	Level 3	2
Fundamental	9013	Describe, apply, analyse and calculate shape and motion in 2-and 3-dimensional space in different contexts	Level 3	4
Fundamental	119457	Interpret and use information from texts	Level 3	5
Fundamental	9012	Investigate life and work related problems using data and probabilities	Level 3	5
Fundamental	119467	Use language and communication in occupational learning programmes	Level 3	5
Fundamental	7456	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	Level 3	5
Fundamental	119465	Write/present/sign texts for a range of communicative contexts	Level 3	5
Core	120242	Demonstrate an understanding of heating and cooling media in a food-manufacturing environment	Level 2	4
Core	120235	Demonstrate an understanding of the concept of microbiology in a food handling environment	Level 3	6
Core	120245	Demonstrate an understanding of the nature of milk and its transformation into commercial dairy products	Level 3	6
Core	120243	Evaluate the efficiency of milk or cream pasteurisation as indicated by the phosphatase test	Level 3	5
Core	120241	Evaluate the quality of a dairy product in terms of its fat content, as determined by the Gerber or Babcock fat determination method	Level 3	5
Core	336879	Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures	Level 3	5
Core	336867	Pasteurise, thermise or vacreate a liquid food product using a plate or tubular heat exchanger	Level 3	12
Core	119802	Perform quality control practices in a food or sensitive consumer product operation	Level 3	6
Core	336862	Separate liquids using a centrifugal separator	Level 3	8
Core	336861	Standardise the fat content of a liquid dairy product	Level 3	7
Elective	120238	Collate and shrink-wrap packaged products using automated wrapping equipment	Level 2	6
Elective	336866	Evaluate the composition of raw milk using an infrared or ultrasound analyser	Level 3	6
Elective	120236	Evaluate the efficiency of homogenisation of a liquid dairy product	Level 3	4
Elective	336864	Evaluate the quality of a fruit juice, fruit juice concentrate or fruit milk mixture as indicated by its Brix-acid ratio	Level 3	3
Elective	336863	Homogenise a liquid dairy product	Level 3	6
Elective	120239	Monitor critical control points (CCPs) as an integral part of a hazard analysis critical control point (HACCP) system	Level 3	6
Elective	336865	Operate and control the filling and closing of glass or rigid plastic containers for food products	Level 3	10
Elective	336860	Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products	Level 3	12
Elective	336859	Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products	Level 3	10
Elective	119796	Monitor and control quality assurance procedures in a food or sensitive consumer product environment	Level 4	8

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION

None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products

SAQA US ID	*UNIT STANDARD TITLE*		
336859	Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120256	Operate and control the forming, filling and hermetic sealing of plastic sachets or bags for food products	Level 3	10	Will occur as soon as 336859 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of packaging of food products in plastic sachets or bags.

SPECIFIC OUTCOME 2
Prepare to pack a food product in plastic sachets or bags.

SPECIFIC OUTCOME 3
Pack continuously for 30 minutes at an acceptable packaging rate, at the correct weight or volume and without product and packaging material wastage.

SPECIFIC OUTCOME 4
Perform end of packaging procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products

SAQA US ID	*UNIT STANDARD TITLE*		
336860	Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120258	Operate and control the forming, filling and hermetic sealing of gable top or brick type cartons for food products	Level 3	12	Will occur as soon as 336860 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of hermetic gable top or brick type carton packaging.

SPECIFIC OUTCOME 2
Prepare to pack a food product in gable top or brick type cartons.

SPECIFIC OUTCOME 3
Pack a food product hermetically in gable top or brick type cartons.

SPECIFIC OUTCOME 4
Perform end of packaging procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Standardise the fat content of a liquid dairy product

SAQA US ID	*UNIT STANDARD TITLE*		
336861	Standardise the fat content of a liquid dairy product		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	7

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120255	Standardise the fat content of a liquid dairy product	Level 3	7	Will occur as soon as 336861 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of fat standardisation of liquid dairy products.

SPECIFIC OUTCOME 2
Prepare for standardisation.

SPECIFIC OUTCOME 3
Standardise a liquid dairy product.

SPECIFIC OUTCOME 4
Perform end of standardisation procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Separate liquids using a centrifugal separator

SAQA US ID	*UNIT STANDARD TITLE*		
336862	Separate liquids using a centrifugal separator		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	8

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120259	Separate liquids using a centrifugal separator	Level 3	8	Will occur as soon as 336862 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of separating liquids using centrifugal force.

SPECIFIC OUTCOME 2
Prepare to separate liquids with different densities.

SPECIFIC OUTCOME 3
Separate liquids using centrifugal force.

SPECIFIC OUTCOME 4
Perform end of separation procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Homogenise a liquid dairy product

SAQA US ID	*UNIT STANDARD TITLE*		
336863	Homogenise a liquid dairy product		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120257	Homogenise a liquid dairy product	Level 3	6	Will occur as soon as 336863 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of homogenisation of liquid dairy products.

SPECIFIC OUTCOME 2
Prepare to homogenise a liquid dairy product.

SPECIFIC OUTCOME 3
Homogenise a liquid dairy product.

SPECIFIC OUTCOME 4
Perform end of homogenisation procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Evaluate the quality of a fruit juice, fruit juice concentrate or fruit milk mixture as indicated by its Brix-acid ratio

SAQA US ID	*UNIT STANDARD TITLE*		
336864	Evaluate the quality of a fruit juice, fruit juice concentrate or fruit milk mixture as indicated by its Brix-acid ratio		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	3

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120244	Evaluate the quality of a fruit juice, fruit juice concentrate or fruit milk mixture as indicated by its Brix-acid ratio	Level 3	3	Will occur as soon as 336864 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of determining the Brix-acid ratio.

SPECIFIC OUTCOME 2
Prepare for the determination of the percentage of the total soluble solids (°Brix) and titratable acidity.

SPECIFIC OUTCOME 3
Determine the percentage of the total soluble solids (°Brix), titratable acidity and calculate the Brix-acid ratio.

SPECIFIC OUTCOME 4
Report on the quality of a fruit juice, fruit juice concentrate or fruit-milk mixture in terms of its Brix-acid ratio.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Operate and control the filling and closing of glass or rigid plastic containers for food products

SAQA US ID	*UNIT STANDARD TITLE*		
336865	Operate and control the filling and closing of glass or rigid plastic containers for food products		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	10

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120233	Operate and control the filling and closing of glass or rigid plastic containers for food products	Level 3	10	Will occur as soon as 336865 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of filling and closing of glass or rigid plastic containers.

SPECIFIC OUTCOME 2
Prepare to fill and close glass or rigid plastic containers.

SPECIFIC OUTCOME 3
Fill and close glass or rigid plastic containers.

SPECIFIC OUTCOME 4
Perform end of filling and closing procedures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Evaluate the composition of raw milk using an infrared or ultrasound analyser

SAQA US ID	*UNIT STANDARD TITLE*		
336866	Evaluate the composition of raw milk using an infrared or ultrasound analyser		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	6

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120237	Evaluate the composition of raw milk as determined by an infra red analyser	Level 3	6	Will occur as soon as 336866 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of how the composition of raw milk is determined using an infra red or ultrasound analyser.

SPECIFIC OUTCOME 2
Prepare to determine the composition of raw milk with an infra red or ultrasound analyser.

SPECIFIC OUTCOME 3
Determine the composition of raw milk with an infra red or ultrasound analyser.

SPECIFIC OUTCOME 4
Report on the composition of raw milk.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Pasteurise, thermise or vacreate a liquid food product using a plate or tubular heat exchanger

SAQA US ID	*UNIT STANDARD TITLE*		
336867	Pasteurise, thermise or vacreate a liquid food product using a plate or tubular heat exchanger		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	12

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120234	Pasteurise, thermise or vaccreate a liquid food product by means of a plate or tubular heat exchanger	Level 3	12	Will occur as soon as 336867 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of pasteurisation, thermisation or vacreation of liquid food products.

SPECIFIC OUTCOME 2
Prepare to pasteurise, thermise or vacreate a liquid food product.

SPECIFIC OUTCOME 3
Pasteurise, thermise or vacreate a liquid food product in a plate or tubular heat exchanger.

SPECIFIC OUTCOME 4
Perform end of pasteurisation, thermisation or vacreation duties.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

UNIT STANDARD:

Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures

SAQA US ID	*UNIT STANDARD TITLE*		
336879	Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures		
ORIGINATOR		*PROVIDER*	
SGB Food			
FIELD		*SUBFIELD*	
6 - Manufacturing, Engineering and Technology		Manufacturing and Assembly	
ABET BAND	*UNIT STANDARD TYPE*	*NQF LEVEL*	*CREDITS*
Undefined	Regular	Level 3	5

This unit standard replaces:

US ID	Unit Standard Title	NQF Level	Credits	Replacement Status
120240	Evaluate the sensory quality of pasteurised milk, cream or fruit milk mixtures	Level 3	5	Will occur as soon as 336879 is registered

SPECIFIC OUTCOME 1
Demonstrate an understanding of the sensory quality of pasteurised milk, cream or fruit milk mixtures.

SPECIFIC OUTCOME 2
Prepare for the determination of the sensory quality of pasteurised milk, cream or fruit milk mixtures.

SPECIFIC OUTCOME 3
Determine the sensory quality of pasteurised milk, cream or fruit milk mixtures.

SPECIFIC OUTCOME 4
Report on the sensory quality of pasteurised milk, cream or fruit milk mixtures.

QUALIFICATIONS UTILISING THIS UNIT STANDARD
None