# *Design and development of the curriulum as well as learining material development for a dairy farming occupational qualification.*

**(PRJ-0006-2013)**

## *Milk Producers Organisation*

## *Quarter 3 2013* (July 2013 till September 2013)

## Project goals

### Goal 1 - Compile and submit a formal application to the QCTO to act as Development Quality Partner.

#### *Achievements*

Goal achieved.

A large number of occupations were listed with the QCTO as part of the QCTO pilot project for the development of occupational qualifications. AgriSeta adopted the role and function of the Development Quality Partner (DQP) in consultation with industry role-players for a number of occupational qualifications in the agricultural sector. The partnership between the QCTO and the DQP (AgriSeta) is directed by means of a formal SLA. The agreement specifies the qualifications(s) or specialistions(s) delegated, responsibilities of signatories and a development project time line. Even though AgriSeta enter into partnership agreements with industry representative bodies, the AgriSeta remains the accountable party to the QCTO. Against the above background, the AgriSeta entered into a partnership with the MPO to fulfill the expectations of the QCTO in terms of the development of the Dairy Occupational Qualification. A MOU was concluded between the AgriSeta and the MPO to establish a working relationship that will ensure joint responsibility for a number of project deliverables and associated activities. (Signed 31 Dec 2011).

***No Non-achievements / underperformance has been reported***

### Goal 2 - Get approval from the QCTO for the scope of occupations.

#### *Achievements*

Goal achieved.

The QCTOâ€™s initial intention was to develop a generic livestock farming curriculum that will address all areas of livestock farming. As the development of the Livestock farming curricula progressed (MPO was part of this development team), the need to consider dairy farming specific areas of learning became apparent. A further process was initiated to address the specific needs of the dairy farming industry.

The QCTO approved the following occupational alignment:
Dairy Farm Manager
Dairy Farm Supervisor
Dairy Farm Worker/ Assistant

***No Non-achievements / underperformance has been reported***

## Goal 3 - Co-ordinate and fund an industry meeting to confirm the process, stakeholder involvement, the role of the MPO as Development Quality partner, appointment of persons who will act as the Qualification Development Facilitators.

### *Achievements*

Goal achieved.

The first scoping meeting for the refinement of the profile to address dairy specific needs already took place in January 2012. The meeting recognized the need to involve a broad range of stakeholders during the curriculum development process. The progress of learning is illustrated by the following model:

MODEL OF CURRICULUM PARAMETERS CAN NOT BE INSERTED BY PROGRAMME. REFER TO INSTITUTE FOR MODEL

The model proposed the following:
A person employed in a first line managerial position on a dairy must be able to attend to all dairy farming practices â€“ NQF Level 2 â€“ 4. The qualification must therefore promote progression of learning from NQF level 2 to 4/5.
Dairy farming specific practices will be introduced at NQF level 2. The GETC/ABET qualification at NQF 1 sufficiently addresses general farming activities.

The introduction of the Modules of Employable Skills concepts by the QCTO created an opportunity to rethink the Curriculum structure in terms of dairy farming per se. The initial concept considered the development of three separate qualifications. A qualification at dairy farm worker level, followed by a qualification at dairy farm supervisor level and finally a qualification at dairy farm unit manager level. This approach was restructured with the dairy farm worker and supervisor being established as Modules of Employable Skills within a single Dairy Unit Manager qualification.

The focus of the emerging farming and rural or informal farm labour market are more aligned to skills in farming related practices that will capacitate them to sustain their farming business and income needs than the achievement of a formal national qualification endorsed by the QCTO. Structured industry learning programs aligned to Modules of Employable Skills are thus best suited to address these needs.

All training delivered in the dairy farming industry must be therefor be based on a national standard and must be quality assured. This includes national QCTO qualifications as well as Modules of Employable Skills delivered as industry certificate programs.

The AgriSeta concluded an agreement with the MPO to act as Development Quality Partner for this qualification and therefor approved a budget for facilitator remunerationr. The AgriSeta acts as Assessment Quality Partner (AQP) in terms of a formal agreement with the MPO. This agreement will ensure that the MPO remains responsible for matters such as but not limited to expert inputs in setting standards, design of assessment instruments, appointment of assessors and moderators, and recommendations to the QCTO on provider accreditation.

A core group of dairy farming experts attended all the workshops to ensure continuity during the development. The following persons were nominated as members of the constituency group: Dr

JH du Preez, Prof L Erasmus, Dr K Coetzee, Dr K Muller, Dr D Louwrens, Dr F Malan, D Schutte, K Pienaar, J. Wasserman, P Swart, J Breytenbach, S. Erasmus and G Viljoen. Additional members were nominated during the various stages of the project as required. A group should ideally not exceed 15 members during any development stage to ensure functionality. H van Deventer acted as QDF for this project and K Havenga as assistant QDF.

***No Non-achievements / underperformance has been reported***

## Goal 4 - Orientation of Qualification Development Facilitators appointed by the MPO.

### *Achievements*

Goal Achieved.

The initial profiling process took place in February 2012. Work done by livestock farming was used as a baseline and was further refined to reflect dairy specific needs. The product of this session is an Occupational Profile and Occupational Task Analysis. The result of these workshops clearly demonstrates the need for dairy farming specific curricula that are fit for purpose. The dairy profile was distributed to members of the MPO for verification. Feedback received was positive and no major changes were proposed.

Various Specific Learning Process Design workshops were held during March, April, May, July, October 2012. The occupational profile to date has been distributed electronically to various dairy farming experts who participated at various stages of the development as well as recognized dairy farming experts and dairy farmers recognized as industry leaders. To date no comments received necessitated fundamental changes to the profile. Specific feedback was received from a number of respondents. Comments were supportive of the structure and content of the curriculum. It should be noted that Prof C McCrindle, UP regards this curriculum as one of the best in dairy farming she has ever evaluated.

***No Non-achievements / underperformance has been reported***

## Goal 5 - Dev of the Occupational Curriculum for the Dairy Farm Worker: i. Dev of occup. profile. ii.Dev of subject specs. iii.Dev of practical skills modules. iv. Dev of work experience modules. v. Dev of final curric. document. vi. Dev of Qualification Assessment Specs. vii. Mandatory reporting to the QCTO.

### *Achievements*

Combine Goal 5,6 and 7

The knowledge specifications, practical skills and work experience modules of the Dairy Unit Manager were developed over three distinct phases:
â€¢ During the initial development phase, the learning process design focused on the evaluation of the generic livestock farming components that were developed during 2012.
â€¢ This phase was followed by a dairy specific re-conceptualisation phase at Dairy Farm Supervisor level.
â€¢ The introduction of the Modules of Employable Skills concepts by the QCTO created an opportunity to rethink the curriculum structure in terms of dairy farming per se. The initial concept considered the development of three different qualifications. A qualification at dairy farm worker level, followed by a qualification at dairy farm supervisor level and finally a qualification at dairy farm unit manager level. This approach was restructured with the dairy farm worker and supervisor being established as Modules of Employable Skills within a single Dairy Unit/Herd

Manager qualification.

The following documents were submitted to the QCTO as well as Milk SA:
Appendix A: Occupational Qualification Document
Appendix B: External Assessment Specification Document
Appendix C: Curriculum Document (this document is a work document and consist of more than 100 pages.)

Reporting to the QCTO takes place on a continuous base.

***No Non-achievements / underperformance has been reported***

## Goal 6 - Development of the Occupational Curriculum for the Dairy Farm Supervisor: i. Dev of occup. profile. ii.Dev of subject specs. iii.Dev of practical skills modules. iv. Dev of work experience modules. v. Dev of final curric. document. vi. Dev of Qual. Ass. Specs. vii. Mandatory reporting to QCTO

### *Achievements*

Refer to goal 5.

***No Non-achievements / underperformance has been reported***

## Goal 7 - Development of the Occupational Curriculum for the Dairy Herd Manager: i. Dev of occup. profile. ii.Dev of subject specs. iii.Dev of practical skills modules. iv. Dev of work experience modules. v. Dev of final curric. document. vi. Dev of Qualif. Assess. Specs. vii. Mandatory reporting to QCTO

### *Achievements*

Refer to goal 5.

***No Non-achievements / underperformance has been reported***

## Goal 8 - Development of learning material

### *Achievements*

The first four modules of the Dairy Farm Supervisorâ€™s learning material has been developed and are in process of being verified by various industry specialists. The IDT started with the development of the Dairy Supervisor learning material, as it is a more logic approach in laying the foundation for the development of the Dairy Farm Worker and Dairy Herd Managerâ€™s learning material. The Dairy Farm Supervisor learning material consists of the following modules:
â€¢ Module 1: The South African Dairy farming environment
â€¢ Module 2: Dairy calf and heifer rearing feeding and health care
â€¢ Module 3: Dairy animal health care
â€¢ Module 4: Dairy animal production
â€¢ Module 5: Dairy livestock feeding

â€¢ Module 6: Milk harvesting and in-parlour processing
â€¢ Module 7: Team leadership

Detail of Modules and Chapters that have been developed to date and are in the process of being verified:

MODULE 1 (NQF level 2)

South African Dairy farming environment

CHAPTERS
Introduction to the South African dairy industry
1. Career opportunities in the dairy industry
2. Commercial dairy farming
3. Emerging farmers and opportunities
4. Risks in dairy farming
5. The dairy industry value chain

Dairy breeds
1. Holstein Friesland
2. Jersey
3. Guernsey
4. Ayrshire
5. Dairy Swiss
6. Dual purpose breeds
7. Cross breeds
8. Choosing a breed

Basic dairy farming business concepts
1. Understanding management
2. Understanding money matters and costs
3. Understanding marketing
4. Understanding machines and equipment
5. Understanding manpower
6. Understanding of production material and resources
7. Understanding the value of livestock
8. Understanding productivity and profitability
9. Understanding production cycles

MODULE 2 (NQF level 3)

Dairy calf and heifer rearing, feeding and health care

CHAPTERS
Introduction to dairy calf and heifer health care
1. Developmental time scale of calves and replacement heifers
2. Care of calving and the new-born calf (vitality, colostrum, navel disinfection)
3. Importance of healthy calves and heifers in terms of productive herds
4. Visual appearance of a healthy calf
5. Factors that affect calf health
6. Importance of colostrum and passive immunity
7. Vaccination programs (active immunity) for dairy calves and heifers
8. Types of vaccines, storage and handling of vaccines (maintenance of the cold chain)
9. Internal parasite control
10. External parasite control
11. Separation of calves with disease and quarantine principles
12. Bio-security of calf rearing facilities

Calf rearing systems
1. Permanent housing
2. Movable pens
3. Calf camps for group rearing
4. Deep litter systems

Hygiene and Care
1. Importance of hygiene
2. Daily inspection practices including critical inspection points
3. Factors affecting hygiene
4. Cleaning and disinfecting chemicals and equipment
5. Signs of poor hygiene
6. Fly control
7. Water drainage and moisture control
8. Personal hygiene and protective clothing

Calf feeding concepts
1. Handling and feeding of colostrum
2. Handling and preparing milk and milk substitutes for feeding
3. Milk feeding risks (mastitis, milk containing residues such as antibiotics)
4. Basic nutritional requirements of dairy calves and heifers at various ages
5. Importance of roughage and concentrates at various ages
6. Milk feeding schedules of dairy calves
7. Feeding schedules for calves and heifers
8. Water and water quality needs
9. Cleaning and disinfection of feeding equipment
10. Weaning of calves

Awareness of dairy calf diseases
1. Causes of diarrhoea by viral diseases including rota, corona
2. Causes of diarrhoea by bacterial diseases including E.coli, Salmonella spp.
3. Causes of diarrhoea by protozoal diseases (coccidiosis)
4. Nutritional induced diarrhoea
5. First response treatments for diarrhoea
6. Causes of other diseases such as pneumonia, eye infections, navel
7. infections, calf diphtheria

Calf and heifer care and production concepts
1. Calf and heifer handling and restraining
2. Identification, marking and branding
3. Removal of accessory teats
4. De-horning
5. Castration

MODULE 3 (NQF level 3)

Dairy animal health care

CHAPTERS
Diagrammatic illustrations and basic functions of the anatomical systems
1. Body parts of livestock
2. Main organs of livestock
3. The ruminant digestive system
4. The udder
5. The reproduction system
6. The immune system
7. The respiratory system
8. The circulatory system
9. The urinary system
10. The nervous system
11. The muscular and skeletal system
12. The skin

General dairy livestock health
1. Importance of healthy herd in terms of productive herds
2. Visual appearance of a healthy animal
3. Factors that affect animal health
4. Immunity and vaccination programs

5. Types of vaccines
6. Cold chain requirements (storage and handling)
7. Separation of livestock with disease
8. Risks of poor application practices (abscess forming)
9. Adverse drug reactions

Awareness of causes of disease in dairy animals
1. Viral diseases (e.g. lumpy skin disease, Rift Valley fever, three-day stiffsickness, enzootic bovine leukosis)
2. Bacterial diseases (e.g. anthrax, brucellosis, black quarter, pasteurellosis, etritis, mastitis, tuberculosis)
3. Toxins (e.g. botulism)
4. Fungal diseases (e.g. ring worm)
5. Protozoal diseases (e.g. red water)
6. Rickettsial diseases (e.g. heart water, anaplasmosis)
7. Nutritional causes (e.g. acidosis, bloat, mycotoxicosis)
8. Metabolic diseases (e.g. milk fever, ketosis)
9. Injury and trauma
10. Poisoning (e.g. urea, lead, plant poisoning, algae poisoning)

Health assessment
1. Fresh cow health assessment
2. Dry cow health assessment

Parasites and basic lifecycles

Farm bio-security and risk prevention (including zoonotic diseases)
1. Defining bio-security
2. Zoonotic diseases (e.g. brucellosis, tuberculosis, rabies, Rift Valley fever)
3. Disposal of dead animals
4. Quarantine
5. Movement control (access control, vehicles, people and livestock)

MODULE 4 (NQF level 3)

Dairy animal production

CHAPTERS
Animal herding and handling practices
1. Dairy animal welfare and treatment practices
2. Herding of dairy livestock
3. Restraining dairy livestock
4. Dairy livestock loading and transport
5. Dairy livestock handling and holding facilities
6. Common facility problems
7. Stress factors
8. Shade and cooling

Dairy animal breeding concepts
1. Reproduction planning and goals
2. Breeding practices (natural breeding, breeding seasons, artificial breeding)
3. Male breeding behaviour
4. Basic concepts of infertility and venerial diseases
5. Oestrous cycle and signs of oestrous
6. Birth and after birth process
7. Gestation stages and period
8. Herd composition
9. Replacement heifers
10. Dairy animal condition assessment

Water supply systems on dairy farms
1. The water requirements of dairy cattle
2. Water troughs and distribution

3. Water quality

Fencing on a dairy farm
1. Fencing material
2. Fence construction

***No Non-achievements / underperformance has been reported***

# Income and expenditure statement

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|---|---|
| Income and expenditure statement | BUDGET.3.docx |
| Unnecessary spending during period | No |

# Popular Report

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# Additional documentation

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# Statement

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|---|---|
| Levy funds were applied only for the purposes stated in the contract | Yes |
| Levy funds were applied in an appropriate and accountable manner | Yes |
| Sufficient management and internal control systems were in place to adequately control the project and accurately account for the project expenditure | Yes |
| The information provided in the report is correct | Yes |