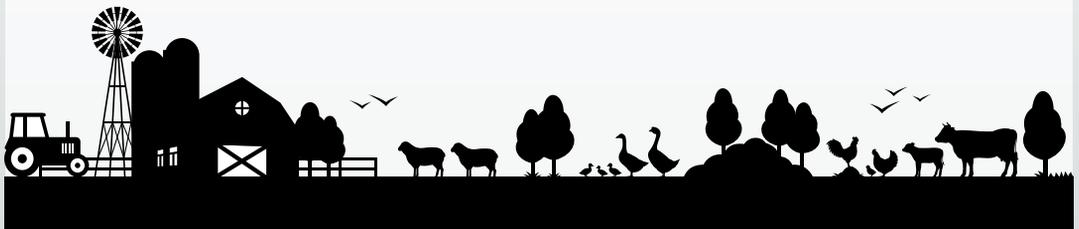


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Institute for Dairy Technology

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INTRODUCTION

The Milk Producers' Organisation (MPO) Training Institute, an affiliated company of the MPO, focuses on training the farmworkers of commercial farmers, as well as on programmes aimed at achieving transformation objectives for emerging farmers. The MPO Training Institute consists of a dynamic team who are fully committed to the MPO's strategic vision - sustainable dairy farming. To achieve this vision, dairy farming must be competitive and responsible. This implies that dairy farmers must focus on the key areas that make a difference to the economic performance of their farms and also address their responsibilities inside

and outside the farm gate. This is what the MPO's three pillars of sustainability - profitability, people and planet (the 3P's) are all about. The MPO Training Institute focuses on the people pillar of the MPO's strategic vision by enhancing the dairy farm workforce's access to information, and the transfer of knowledge through on-going training, development and mentorship. The institute is managed by Helene Pheiffer, who is supported by administrative staff and five permanent instructors providing nationwide on-farm training. A team of industry experts also supports the MPO Training Institute with education and training development.

Helene Pheiffer has been the training and transformation services manager of the MPO Training Institute since 2009. She took over as manager from Dr Jan du Preez in 2016. She holds an honours degree in Industrial Psychology, an MBA and various diplomas.

Corlia Oberholzer is our newly appointed training and client support manager. Corlia is quite familiar with the dairy industry as she grew up on a dairy farm just outside Marble Hall. In 2011 she completed her degree in journalism at the University of Pretoria and went on to do two honours degrees, namely in psychology and criminology. She is currently studying towards her master's degree in business administration through the Edinburgh Business School.



The rest of the institute's team consists of six dynamic team members who focus daily on delivering the best service possible to farmers.

JUSTICE MATHEBULA

Justice has been a training facilitator and assessor at the MPO Training Institute for the past 15 years. He specialises in dairy production, calf rearing, reproduction and artificial insemination practices. Justice was trained at the Boskop Training Centre and at Taurus, the local bull station, where he was also an instructor before permanently joining the MPO. He completed numerous courses as an instructor at the MPO Training Institute. Being a small-scale farmer himself, Justice is passionate about farming and following the correct procedures for optimal results.



HEZEKIEL MATLAMELA

Before Hezekiel joined the MPO team he gained experience as an animal health technician, farm manager and training facilitator at various training centres (including the Boskop Training Centre). Hezekiel's expertise covers intensive dairy knowledge and experience, animal handling and feedlot practices as well as other farming ventures such as broilers, pigs and ostriches. Hezekiel is registered as an animal health technician at the South African Veterinary Council and he is also an accredited training assessor.



JUSTICE PHAAHLA

Justice has been an instructor and assessor at the MPO Training Institute for the past decade. He started his career in agriculture as a human resource administrator on a farm before working as a training facilitator and training manager at the Boskop Training Centre. Justice specialises in dairy management skills and in presenting the code of practice for dairy producers.



WILFRED PHAAHLA

Wilfred completed his National Diploma in Agriculture and Animal Production at the Pretoria Technikon. Although he has extensive experience in dairy production and broiler farms, he is passionate about cattle farming. Wilfred specialises in animal husbandry, health and feeding management practices. Before joining the MPO Training Institute as a facilitator and assessor, he was a skills facilitator at Skills for Africa.



FREDDY MOROKOLO

Freddy joined the MPO team almost 10 years ago. He facilitates and assesses the tractor maintenance courses. Freddy's experience as a training facilitator started at the Boskop Training Centre. He also gained technical experience at various motor dealers, including Honda, Daewoo, Peugeot, Chevrolet and Nissan. Freddy also presents courses in livestock transport and economic empowerment.



CHANTEL JOUBERT

Chantel has been working at the institute as a training assistant since 2016. She is responsible for the scheduling and logistical arrangements of courses, data processing and administrative duties.



SERVICES

1. TRAINING

1.1 Skills development programmes

Training consists of skills development programmes based on AgriSeta unit standards. These programmes for farm-workers are presented on-farm. Theory and practice are combined and presented during a five-day period. The farmer or farm manager acts as a mentor after the training programme has been completed to confirm that the outcomes of the training have been reached. Mentoring time depends on the credits for or notional hours devoted to the skills programme. The skills development programmes represent various National Qualifications Framework (NQF) Levels (nationally recognised and internationally comparable training standards). The MPO Training Institute applies for AgriSeta discretionary funding as a service to farmers in the dairy, red meat and feedlot industries.

1.2 Dairy Occupational Qualification

These skills development programmes (leading to unit standard-based qualifications or learnerships) do not address all the dairy disciplines identified by the industry. Therefore a new Dairy Occupational Qualification – Dairy Farmer – has been developed and is presented on three levels:

- **dairy farmworker**
- **dairy farm supervisor**
- **herd farm manager**

These levels consist of various modules with

- knowledge-based or theoretical components;

- practical skills components; and
- work experience components of learning.

2. ANNUAL TRAINING REPORT (ATR)/ WORKPLACE SKILLS PLAN (WSP)

The MPO Training Institute helps commercial farmers claim 20% of the mandatory grants from the skills development levies (SDL) paid to Sars. The institute does the administration for the completed training of the ATR at dairy farms and the WSP for planned training in the following year. The mandatory grants are reinvested in training, which is administered and managed by the MPO Training Institute. This service not only benefits the farmer but also provides industry statistics and allows the industry to align their training with the agri-sector's scarce and critical skills.

3. WORKPLACE EXPERIENCE OR INTERNSHIPS

The MPO Training Institute annually selects final-year agricultural students to gain experiential learning on commercial dairy farms for a period of one year. This service not only promotes dairy as a career opportunity for the youth, but also provides an opportunity for commercial farmers to establish an educated and high-performance workforce.

The MPO Training Institute helps farmers apply for workplace experience bursaries and also provides guidelines on how to mentor the students.

RED MEAT TRANSFORMATION PROGRAMMES

The MPO Training Institute develops and provides programmes, based on GAP analyses and industry needs, to new developing entrepreneurs in the agricultural sector.

The red meat transformation programme for the Red Meat Producers' Organisation (RPO) includes:

- basic herd management
- herd health
- veld and pasture management
- reproduction management
- marketing management
- farm business (financial) management

1. Basic herd management

Escalating production costs, intermittent drought, livestock disease and increasingly strict food safety legislation are pressuring beef-farming supply and profitability. Knowledge of basic herd management is therefore critical for evaluating the available resources, processes and capabilities in order to fully engage in the cattle business for constant economic return and personal satisfaction.

The guide on basic herd management serves as a fundamental platform for increasing emerging farmers' awareness and knowledge of the basic aspects of management required for profitable and sustainable beef farming. These include an introduction to basic beef breeds in South Africa, selection criteria, and herd composition; followed by herding and handling practices, which range from basic herding and holding facilities to loading and transport. General husbandry

practices that apply to any beef-farming business are also presented in this guide and cover practices such as dipping and drenching, identification and branding, dehorning, castration, age determination, hoof care, and condition assessment.

2. Herd health

The concept of herd health involves adopting a total integrated approach to production and health. Activities on the farm must ensure that healthy animals are produced under acceptable conditions for the animals and in balance with the natural resources.

The guide on herd health therefore aims to address the basic principles of herd health management by focusing on the following: biosecurity and its implications for a beef farm; structured observation and evaluation of animals; disease identification and treatment; disease prevention through vaccination; as well as udder health. Knowledge of these principles gives an emerging farmer the background, knowledge and understanding of how to promote the health of his/her herd, instead of just treating diseases as they arise. Optimal health management and planning on a farm will ultimately increase both positive welfare and the productivity of a herd. A healthy herd will, in most cases, be a productive herd.

3. Veld and pasture management

This guide focuses on several principles and practices of veld management and highlights the important legislation

relating directly or indirectly to it. Natural resources like soil, natural veld types, and bio-climate are also included. Principles and practices of veld management cover a broad spectrum, ranging from the role of grasses, soil erosion, and grazing management, to bush encroachment and fire ecology. Emerging farmers are given ample information to understand and therefore, effectively manage their environment for sustainable beef farming.

4. Reproduction management

The reproductive performance of a beef herd is a major component of the profitability of a beef operation. To achieve the best possible results regarding reproduction, sound management abilities are required.

This guide focuses on key management practices aimed at effecting optimal reproductive efficiency and increasing productivity within cow-calf herds. These practices are mostly associated with the reproductive process, because when one improves herd fertility, one can increase the profitability of the herd in the long term. Matters covered in the guide include the following: basic anatomy of the genital system, reproductive hormones, the production cycle, heat detection, pregnancy detection and care, bovine reproductive diseases and syndromes, natural breeding, as well as artificial insemination (AI) and genomics. Any improvement in herd reproduction management means that the farmer is one step closer to sound and more profitable beef farming.

5. Marketing management

Animal marketing is a farming process that requires a number of decisions. Among the factors that play a part are the age, weight, sex, and fertility of the animal. An animal is promoted for economic reasons, and sold for financial gain.

The best time to market an animal is determined by a variety of factors, the most important of which is the type of animal (weaner calf, heifer, cow and so on). The top selling method also depends on the type of animal. A weaner calf is usually sold out of hand to a feedlot or offered for sale at an auction. If the farmer finishes his own animals, the weaner can be slaughtered at an abattoir and the carcass sold.

6. Farm business (financial) management

Development in process.

SKILLS DEVELOPMENT PROGRAMMES

1. DAIRY PRODUCTION

Dairy production, husbandry and hygiene practices US 116207, US 116120, US 116110. NQF Level 1, 2.

This skills programme addresses all important aspects of working on a dairy farm that enable dairy farmworkers to perform effectively on the farm.



- Pre-milking, milk-routine and post-milking procedures
- Cleaning the milking system, the milking parlour, milking equipment and the bulk tank
- Basic principles of record-keeping, hygiene, as well as the handling and marketing of milk
- Basic principles of care/handling and feeding of calves, heifers and cows
- The identification of udder diseases
- Maintenance after milking

2. ARTIFICIAL INSEMINATION

Basic breeding and artificial insemination practices US 116107. NQF Level 2, 3.

Identifying and monitoring breeding behaviour. The pre- and post-partum behaviour of farm animals will contribute to employees operating effectively in an animal production environment while implementing sustainable and economically viable production principles.



- Breeding principles and practices
- Identifying oestrus of cows and libido of bulls
- Normal and abnormal behaviour during the birth process
- Post-partum behaviour
- Basic artificial insemination practices and procedures

3. ANIMAL HUSBANDRY

Care, observe and handle animals US 12587, US 116197. NQF Level 1.

This skills programme addresses all the skills required by a farmworker to apply basic animal husbandry practices. The course involves a lot of practical demonstrations.



- Identifying general symptoms of sick animals
- Knowledge of common diseases
- Record-keeping
- Basic vaccination and immunisation programmes
- Correct procedures for handling vaccines
- Dipping and tick control
- Correct animal handling
- Procedures for restraining and herding animals
- Dehorning and castration

- Marking and identification
- Heat detection
- Feed and water practices and supply

4. SOCIO-ECONOMIC EMPOWERMENT

Economic systems, agricultural production management systems, work ethics and personal finance US13996, US 13357, US 15092. NQF Level 1.

In order to operate effectively within a free-market agricultural production system, farmworkers need to understand basic economic principles and the concept of work ethics.



SKILLS

- Working effectively within a workplace
- Understanding the free-market economic system and the farmworker's role in it
- Understanding agricultural production systems and the importance of productivity
- Planning and managing personal finances

5. TRACTOR MAINTENANCE

Maintain, repair and drive a tractor US 116060, US 116820. NQF Level 2.

Correct maintenance and safety procedures should be applied when operating a tractor. The ability to use science and technology competently and use the correct techniques when operating tractors will contribute to a sustainable and economically viable production environment.



SKILLS

- Driving a tractor
- Doing daily maintenance on a tractor

- Complying with the legal requirements for operating a tractor
- Recognising operating hazards in the use of a tractor
- Documenting tractor use

6. OCCUPATIONAL HEALTH AND SAFETY

Apply and utilise health and safety principles in livestock production and processing US 1199447, US 123172. NQF Level 2.

The dairy industry in South Africa is regulated by various acts, regulations and guidelines. This skills programme includes the relevant sections of the South African Occupational Health and Safety Act (85 of 1993) that affect workers in the dairy and livestock production environment. Records of this training should be made available to an inspector on request.



SKILLS

- Knowledge of duties and responsibilities of the employer and the employees
- Knowledge of requirements for transport, loading and equipment safety
- Steps to be taken during emergency situations
- Personal and food hygiene training relevant to the production and handling of milk
- Good dairy farming practices based on the Dairy Standard Agency's *Code of Practice for Milk Producers*

7. FEEDLOT HANDLER – LIVESTOCK HANDLING

Observe and handle animals, inspect animal health and administer livestock-processing treatments US 116197, US 116643, US 116074. NQF Level 1, 2.

The health status of animals needs to be observed so that feedlot-processing treatment programmes enhancing livestock health and quality can be applied. Animals must be handled according to best practices that will ensure healthy animals and humane treatment. Sustainable and economically viable production principles need to be implemented in an animal production environment.



SKILLS

- Observing, recording and reporting on normal and abnormal animal behaviour and physical attributes
- Herding animals in a controlled manner
- Restraining animals in a restraint facility
- Preparing and administering livestock-processing treatments
- Selecting vaccines and pharmaceuticals
- Adhering to animal and human safety precautions
- Applying treatment procedures
- Observing biosecurity principles

8. FEEDLOT UNIT CONTROLLER – DISEASES AND BIOSECURITY

Prevent and treat animal diseases, determine feedlot mass and implement animal health biosecurity US 116219, US 116637, US 116308. NQF Level 3, 4.

The procedures relating to animal health best practices, biosecurity programmes and record-keeping are essential for feedlot unit controllers to operate effectively in an animal production environment.



SKILLS

- Carrying out procedures relating to animal health and supervising the

way animals are restrained for such procedures

- Gaining specific knowledge and skills in animal health and being able to operate in an animal production environment by observing sustainable and economically viable production principles
- Restraining animals and related procedures
- Performing basic veterinary procedures
- Treating and vaccinating animals under supervision
- Supervising the practical implementation of basic principles of biosecurity
- Carrying out planned programmes
- Preparing the weighing facility
- Determining livestock mass
- Recording and submitting determined mass
- Restoring the weighing facility to inoperative status
- Supervising animal disease prevention and ensuring correct practices are in place
- Ensuring that the basic clinical examination is done correctly
- Ensuring correct dosage rates, and calibrating and using instruments correctly
- Ensuring that planned programmes are carried out

9. FEEDLOT ENVIRONMENT, FEEDLOT FEED INGREDIENTS AND BLENDS

US 116647, US 116653. NQF Level 3.

Understanding the feedlot operating environment improves the cost-

effectiveness of feedlots. Therefore, an understanding of the purchase areas, role players, legislation and efficiency terminology used, is essential. The identification of different feedlot feed ingredients and feedlot blends according to the level of concentration is also important.



- **Identifying all the industry role players and structures**
- **Evaluating livestock purchase regions**
- **Understanding relevant legislation applicable to the livestock industry**
- **Applying feedlot production and slaughter norms**
- **Identifying basic feedlot feed ingredients**
- **Distinguishing between blended feedlot feeds**
- **Identifying the quality of blends**

DAIRY OCCUPATIONAL QUALIFICATION

The Dairy Occupational Qualification is regulated by the Quality Council for Trade and Occupations (QCTO) and covers levels 1 – 5 of the National Qualifications Framework (NQF). This new approach of training gives dairy farmworkers the opportunity for progressive occupational growth and for achieving an occupational qualification.

This consists of three different levels with the required modules:

- **dairy farmworker (Module 1 – 6, 8)**
- **dairy farm supervisor (Module 1 – 8)**
- **dairy farm manager (Module 9 – 13)**

The curriculum consists of partial qualifications (dairy farmworker and dairy farm supervisor), specialised qualifications and a full qualification. The qualification as a dairy farmer can only be obtained once the learner has completed both the dairy supervisor and manager levels. The modules can also be presented separately and each module completed will be recognised. Foundational learning competence is a prerequisite and the qualification can also be attained in part through recognition of prior learning (RPL). This includes the assessment of previous learning interventions and work experience.

The curriculum consists of three components:

1.  **Knowledge** is conveyed during scheduled workshops or training ses-

sions. Competency is assessed by testing the knowledge gained at the end of each training session. The theory or knowledge component is divided into 13 modules.

2.  **Practical skills** require the performance of specific tasks as indicated in each module. Practical skills are assessed after the relevant theory has been discussed. The assessor receives an assessment guide with stipulated assessment criteria and observes the learner doing specific tasks. If the learner is able to meet the requirements, the learner is declared competent. If the learner is not yet competent, another assessment intervention can be scheduled when the learner indicates he or she is ready to be assessed.

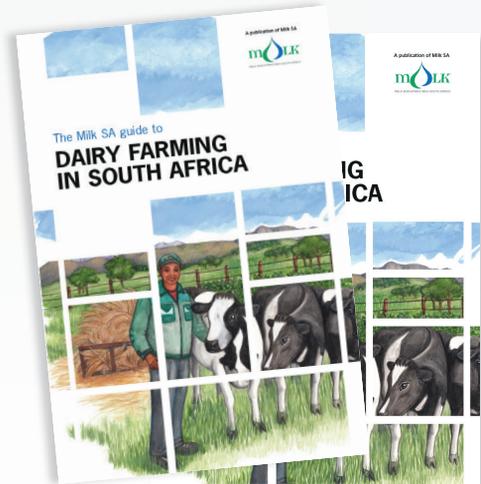
3.  **Workplace experience** forms an important part of the whole training programme. Each learner receives a logbook stipulating how (observing, assisting or without supervision) and for how long the learner must actively be involved in specified tasks on a dairy farm. The logbook must be completed by the supervisor or farmer under whose guidance the learner worked in a specified section on the dairy farm and serves as important evidence of the learner's overall competency.

DAIRY FARMWORKER QUALIFICATION

The dairy farmworker qualification forms part of the curriculum of the Dairy Occupational Qualification. It is a simplified version of the content of modules 1 to 6 and 8.

The learning material is based on the content of *The Milk SA Guide to Dairy Farming in South Africa*.

Refer to p. 22 for the Legenda(i)ry board game based on the *Code of Practice for Milk Producers*. This board game is in compliance with the legal requirement that all food handlers are to be trained in food safety.



Knowledge

- Introduction to the South African dairy industry
- Dairy calf and heifer health care
- Dairy animal health care
- Dairy animal production
- Dairy livestock feeding
- Milk harvesting and in-parlour processing

Practical skills

- Attend to dairy calves and heifers
- Attend to dairy animal health care
- Attend to dairy animal production
- Attend to dairy livestock feeding
- Attend to milk harvesting and in-parlour processing

Work experience

- Assist and observe an experienced person on a dairy farm for a period of one week:
 - attending to the calves and heifers, the dry cows and bulls
 - preparing and distributing feed to lactating cows
 - executing the milk-harvesting process
 - doing in-parlour processing and handling milk
- Attend to the above for a period of one week under supervision
- Attend to the above for a period of two weeks without supervision

MODULE 1

South African dairy farming environment

FARMWORKER AND SUPERVISOR MODULE

In South Africa, milk is produced by commercial, as well as small and medium-sized producers at the first stage in the dairy industry value chain. Dairy farmers' production systems need to combine productivity and profitability while protecting human and animal health, animal welfare and the environment. The aim when choosing the breed and production system should therefore be to produce the best-quality milk at the lowest possible cost.

In order to achieve success as a business, a dairy farm needs to adopt and implement the relevant business skills. Effective and efficient management is a prerequisite for success and is the least costly way of improving production.

NQF Level 2



Knowledge

- Introduction to the South African dairy industry
- Dairy breeds
- Basic dairy-farming business concepts

MODULE 2

Dairy calf and heifer rearing, feeding and health care FARMWORKER AND SUPERVISOR MODULE

Heifer calves represent the future of a herd. By understanding the scientific principles of calf growth, nutrition, health and behaviour, producers can develop a successful management system. The importance of ensuring the welfare and biosecurity of your future milking herds can never be overestimated. Calf-rearing facilities should be designed to provide the required protection and comfort for calves, while continued attention to hygiene is crucial in maintaining the health and vitality of calves and heifers. As feeding is a crucial part of raising healthy, productive calves that will improve the herd, good colostrum management, consistent feeding and good management practices are essential. Diseases of calves are complex and the relevant risk factors should be minimised and the sources of infection eliminated or bypassed.

NQF Level 2, 3



Knowledge

- Introduction to dairy calf and heifer health-care
- Calf-rearing systems
- Hygiene and care
- Calf-feeding concepts
- Awareness of dairy calf diseases
- Calf and heifer care and production concepts



Practical skills

- Perform calf-rearing and production practices
- Perform a systematic health inspection of the calf
- Administer basic animal health treatments on calves



Work experience

- Assist and observe an experienced person attending to the calves on a dairy farm for one week
- Attend to the calves for one week under close supervision
- Attend to the calves without supervision for two weeks

MODULE 3

Dairy animal healthcare

FARMWORKER AND SUPERVISOR MODULE

A basic knowledge of the anatomy and basic functions of the various anatomical systems are essential for efficient health management. The focus must be on promoting health rather than treating disease. Knowledge of what causes diseases, and how animals can get a disease, can help prevent diseases. This can also help farmworkers to treat sick animals. A good biosecurity plan should be routinely adopted as part of farm management to help reduce the risk of new diseases entering the herd. General biosecurity measures should include

restricting and controlling the movements of people, vehicles and equipment into areas where cattle are kept.

NQF Level 2, 3



Knowledge

- Diagrammatic illustrations and basic functions of the anatomical systems
- General dairy livestock health
- Awareness of the causes of disease in dairy animals
- Health assessment
- Parasites and basic life cycles
- Farm biosecurity and risk prevention (including zoonotic diseases)



Practical skills

- Perform a systematic health inspection of cows and bulls
- Administer basic animal health treatments of cows and bulls



Work experience

- Assist and observe an experienced person performing healthcare practices pertaining to cows and bulls on a dairy farm for one week
- Attend to general healthcare practices pertaining to cows and bulls on a dairy farm under supervision for one week
- Attend to general healthcare practices pertaining to cows and bulls on a dairy farm within normal farm reporting structures and oversight for two weeks

MODULE 4

Dairy animal production

FARMWORKER AND SUPERVISOR MODULE

Dairy farm owners and their entire workforce have a responsibility to care for the welfare of the animals in their care. Handling facilities should not cause unnecessary stress or pain to the animals and should be designed for the maximum safety of the handler. As stress affects animal health and productivity, a proactive approach to minimising and avoiding stress factors is encouraged.

Reproductive performance and efficiency is important for the productivity and profitability of a dairy farm. It is important to plan thoroughly for reproduction and to have specific goals and objectives. Selecting heifers and culling cows in a dairy

herd must be based on the breeding and production goals set by the farmer.

As water is essential for digestion and body functioning, the availability and quality of water are extremely important for animal health and productivity. Well-built and maintained fences will contribute to good management practices on any dairy farm.

NQF Level 2, 3



Knowledge

- Animal herding and handling practices
- Dairy animal breeding concepts
- Water supply systems on dairy farms
- Fencing on a dairy farm



Practical skills

- Perform animal production and feeding practices pertaining to cows and bulls
- Select and prepare cows for AI or natural breeding



Work experience

- Assist and observe an experienced person attending to production activities pertaining to the cows and bulls on a dairy farm for one week
- Attend to the production activities pertaining to the cows and bulls for one week under supervision
- Attend to the production activities pertaining to the cows and bulls on a dairy farm within normal farm reporting structures and oversight for two weeks

MODULE 5

Dairy livestock feeding

FARMWORKER AND SUPERVISOR MODULE

The quantity and quality of feed and water largely determines the dairy animal's health and productivity in the various production stages. The correct feeding system is vital to producing a high milk yield and to ensuring healthier, fertile cows.

The use of total mixed rations (TMR) is a popular and effective way of meeting the nutritional needs of dairy cows, and although the level of milk production on pastures is usually lower than with a TMR, it is often more economical.

To ensure your heifers are healthy and produce milk profitably they need to receive proper care and serious attention must be given to their feeding, while the aim of feeding cows in milk must be to obtain the highest possible milk yield with the lowest possible cost of nutrition. The

primary objective of dry-cow nutrition and management are to optimise health, milk yield and reproduction in the following lactation.

Proper planning, implementation and maintenance of feeding facilities and equipment form an integral part of an effective feeding programme on a dairy farm.

NQF Level 2, 3



Knowledge

- Dairy feed types and feeding practices
- Feeding of heifers
- Feeding of cows in milk
- Feeding of dry cows
- Feeding facilities and equipment



Practical skills

- Prepare, mix and distribute supplementary and concentrated feed
- Monitor feed stock and storage



Work experience

- Assist and observe an experienced person preparing and distributing feed to lactating cows on a dairy farm for one week
- Attend to preparing and distributing feed to lactating cows for one week under supervision
- Attend to preparing and distributing feed to lactating cows for two weeks without supervision

MODULE 6

Milk harvesting and in-parlour processing

FARMWORKER AND SUPERVISOR MODULE

The location and layout of the milking shed is of vital importance for the smooth and successful running of a dairy farm. There are numerous types of milking parlours to choose from. Very good udder hygiene forms an important part of udder health and prevents costs and losses relating to mastitis. Milk samples are taken from the bulk tank and can be used as a screening test to monitor the udder health status and the quality of the milk in the herd. The correct milking procedures, handling cows gently, clean udders and a clean environment all contribute to the

production of quality milk. A consistently applied milking routine is essential and milking should be done by trained and responsible people. To keep records means to collect relevant information that can help the farmer make good decisions based on facts and statistics, with the overall objective of improving efficiency on the farm. Maximising profitability is the result of applying proven management principles and quality control during the in-parlour processing of milk.

NQF Level 2, 3



Knowledge

- Milk-harvesting facilities
- Udder health
- The milk-harvesting process
- Dairy parlour equipment and systems
- Dairy parlour hygiene
- Essential production records
- Composition of milk and quality indicators
- In-parlour processing and quality control concepts



Practical skills

- Harvest milk, attend to milking parlour hygiene and equipment
- Attend to cleaning the dairy parlour and wastewater treatment
- Prepare cows for milking
- Handle lactating cows treated for mastitis
- Handle cows fresh in milk (colostrum)
- Milk cows and maintain milk records
- Attend to the cooling and storage equipment
- Maintain dairy parlour hygiene practices
- Clean and care for dairy parlour equipment



Work experience

- Assist with and observe the milk-harvesting process for a period of one week
- Perform milk harvesting under supervision for a period of two weeks
- Attend to the milk-harvesting process for a period of two weeks without supervision

MODULE 7

Team leadership

SUPERVISOR MODULE

The role of the supervisor is traditionally a complex one, as it entails various responsibilities towards your employees, as well as management. Supervisors can and should play an important role in increasing their employees' effectiveness and productivity in the work environment. There are proven best management practices that should be considered for inclusion in any set of standard operating procedures (SOPs).

Ongoing supervision of progress helps to ensure the team is on schedule in meeting the objectives and performance targets.

Leadership training for supervisors will help team leaders lead by motivating and inspiring workers. The supervisor has an important role in enforcing the dairy's code of conduct, which is instrumental to maintaining discipline.

NQF Level 3, 4



Knowledge

- Introductory thoughts on supervision
- Performance standards
- Motivation and team leadership
- Interpersonal relations
- First-line discipline
- Work efficiency and effectiveness



Practical skills

- Initiate and maintain first-line discipline
- Lead and direct work teams
- Keep dairy farm records and perform other administrative processes

The learner will be required to:

- explain the content of a management briefing note to a group of subordinates;

- confirm understanding of the main points communicated;
- encourage questions and respond to them;
- provide feedback to management on the outcome of the briefing session;
- collect information and compile dairy parlour records;
- administer dairy parlour records;
- collect information to be recorded;
- record data accurately on data-recording sheets; and
- recognise problem areas and report them to management



Work experience

- Allocate tasks to team members, monitor the way the tasks are carried

- out and report according to workplace standards
- Recognise and respond to problems that arise while the tasks are carried out according to workplace standards
- Lead and direct work teams during days when limited support is available such as over weekends or public holidays
- Assist with and observe record-keeping and administration on a dairy farm for a period of two days
- Undertake record-keeping and administration under supervision on a dairy farm for a period of three days
- Attend to record-keeping and administration on a dairy farm autonomously for a period of one week

MODULE 8

Code of Practice for Milk Producers

SUPERVISOR MODULE

The Dairy Standard Agency's (DSA) *Code of Practice for Milk Producers* offers a systematic approach to compliance with food safety requirements at primary production level. It also aims to provide stakeholders in the industry with norms for measuring supplier quality assurance and addresses the minimum requirements for export certification.

In the design of any of the structures on a dairy farm specific requirements need to be considered. It is important to maintain machines in accordance with the instructions and requirements of the

various manufacturers. All dairy farmers should adhere to the recommended good milking practices and ensure that these are implemented on their dairy farms.

The health and general welfare of dairy animals are considered to be very important and deserve priority. Effective hygienic practices during milking are important, as the system is required to produce safe and suitable milk and dairy products. Specific requirements regarding the standard for raw milk need to be adhered to.

NQF Level 3, 4



Knowledge

- Introduction to the *Code of Practice for Milk Producers*
- Structural requirements and machine maintenance
- Good milking practices
- Animal health and welfare
- Hygiene
- Documentation
- Standards of and quality control for raw milk



Practical skills

- Identify structural requirements and perform machine maintenance
- Carry out recommendations for good milking practices
- Carry out recommendations for animal health and welfare practices
- Carry out general and dairy farm-specific hygiene practices
- Assist with the administration of dairy farm-specific documentation



Work experience

- Assist with and observe the implementation of concepts relating to the *Code of Practice for Milk Producers* on a dairy farm for two weeks
- Implement concepts relating to the code of good practice on a dairy farm under supervision for one month
- Manage the implementation of concepts relating to the *Code of Practice for Milk Producers* on a dairy farm under normal supervisory and managerial conditions for a period of one month

Code of Practice for Milk Producers Legenda(i)ry board game FARMWORKER MODULE

The MPO Training Institute has developed a board game for milk producers that will help them “moo-ve” compliance in an engaging and industry-relevant way. The board game, which goes by the name of Legenda(i)ry, uses gamification – the application of game-design elements in non-gaming contexts – as an alternative, cutting-edge training experience for farmworkers to maintain the integrity of suppliers’ milk and managing the supply chain effectively.

Gamification techniques such as this board game compel employees to prove their value and knowledge, encouraging and boosting participation, while at the same time, injecting an element of fun.

The aim of Legenda(i)ry is to “moo-ve” as a herd (i.e. a team) to greener pastures on the board while interacting with the content of the **Code of Practice for Milk Producers**.

- increases learning and retention of regulatory concepts about food safety;
- increases awareness and understanding of the necessity of the code of practice;
- uses educationally relevant and experiential learning methods;
- enables “cross-pollination” of learning in the sense that participants assist, correct and encourage each other in providing the most complete, accurate answers relevant to the code of practice;
- involves all farmworkers in various ways, whether they are literate or illiterate.

Ultimately, Legenda(i)ry serves as a platform for improving internal participation and operations in such a way that milk producers can overcome their compliance “herdles” and “moo-ve” towards the standards of best practice.

One chapter represents one round on the board. Since there are multiple rounds, this creates a friendly competitive environment among the participants. In this way, participants need to use their collective work experience and knowledge and engage with each other to learn about industry standards that ensure food safety.

The value of gamification for milk producers lies in the fact that this novel way of training:



MODULE 9

Dairy farm production management

MANAGER MODULE

Dairy farm design concepts are important contributing factors to the success of the dairy farm operation. The manager needs to be well informed of various design factors in order to fully understand how design, availability and the correct utilisation of facilities will influence the effectiveness of implementing managerial decisions.

Reproductive performance and efficiency is important for the productivity and profitability of a dairy farm. Consequently, it is important to plan properly and have specific goals and objectives (performance parameters) in place. It is important for a dairy farm manager to understand the nutrient requirements of dairy cows at various stages of lactation and to combine various feed ingredients to meet these requirements cost-effectively. Better feed

efficiency and a scientifically balanced diet help to achieve maximum milk yield and increased production per cow.

The total profitability of the dairy farm depends on a healthy herd. For animals to grow and produce milk at optimal and profitable levels they must be healthy. Biosecurity programmes can help farm managers prevent or reduce the risk of disease entering and spreading in their herd.

NQF Level 4, 5



Knowledge

- Dairy farm design concepts
- Dairy animal breeding
- Dairy animal nutrition
- Dairy animal health management



Practical skills

- Implement herd composition objectives
- Implement healthcare policy
- Implement breeding policy
- Implement feeding policy
- Maintain a data management system



Work experience

- Assist with and observe dairy farming management for two weeks
- Perform dairy farm management activities under supervision for one month
- Manage the management of a dairy farm under normal supervisory and management conditions for one month

MODULE 10

Farm business management

MANAGER MODULE

To be able to successfully manage a dairy farm business, resources must be managed in such a way that the challenges of varying costs, prices and climatic conditions can be met. The dairy manager needs to continuously ensure that all standard operating procedures are followed daily in exactly the same way. Labour on a dairy farm needs to be managed well. In addition to management skills, the dairy farm manager must also be aware of and have appropriate knowledge of the relevant labour-related

legislation. Financial management on a dairy farm requires not only knowledge of money matters, but also insight into and an understanding of the productivity and profitability of a dairy herd. Natural resource management is about the long-term implications of our actions with sustainability as the goal.

The dairy farm manager should be familiar with the relevant laws, ensuring that all employees comply with them.

NQF Level 5



Knowledge

- Farm business management
- Farm labour management
- Financial and stock management
- Natural resource management
- Introductory overview of dairy farming-related legislation



Practical skills

- Control operational costs
- Manage farm labour
- Manage farm records
- Manage stock and assets



Work experience

- Assist with and observe dairy farming management for two weeks
- Perform dairy farm management activities

under supervision for one month

- Manage a dairy farm under normal supervisory and management conditions for one month

The person will be expected to engage in the following activities:

- assist with and observe dairy herd management activities and functions such as feeding practices, herd healthcare practices and breeding practices, herd management planning and reporting meetings;
- assist with and observe dairy parlour management activities and functions such as following milking parlour routines,

ensuring milking parlour hygiene, maintaining the milking parlour, marketing the milk, parlour management planning and giving feedback at meetings;

- assist with and observe dairy farm administration and cost-control activities such as record-keeping and reporting, the purchasing of goods, control of stocks and assets, financial planning and reporting meetings; and
- assist with and observe labour management activities and functions such as industrial relations, performance management, labour control, labour planning and reporting at meetings

MODULE 11

Pasture management

MANAGER MODULE

Veld and cultivated pastures can play complementary roles in providing fodder to livestock on dairy farms. As pasture can be a cost-effective feed for dairy cows, it is essential that a dairy farmer thoroughly plans the integration of cultivated pastures into the farming system. Knowledge and understanding of grazing principles are required to manage grazing as part of the fodder flow programme effectively. Where pastures do not meet the roughage and nutritional needs of dairy cows, supplementary feeding should be provided.

Dairy cattle on pastures are inevitably subject to certain health risks, metabolic

disturbances and feeding imbalances. It is important to identify and understand these health risks such as nutritional imbalances, internal parasites, plant poisonings and mycotoxicoses, as well as water quality.

NQF Level 5



Knowledge

- Introduction to the concepts of cultivated pastures on South African dairy farms
- Farm planning
- Pastures and fodder flow
- Principles of grazing management
- Nutritional value of green pastures
- Health risks of dairy cattle on pastures



Practical skills

- Assess natural resources
- Develop physical aspects of pasture establishment
- Identify various pasture types
- Establish pastures
- Maintain pastures
- Manage irrigation on pastures
- Plan fodder flow
- Plan grazing programmes
- Manage nutrition of dairy animals on pastures
- Manage health risks of dairy cattle on pastures



Work experience

- Assist with and observe pasture management on a dairy farm for two weeks
- Perform pasture management activities on a dairy farm under supervision for one month
- Manage pastures on a dairy farm under normal supervisory and managerial conditions for one month

MODULE 12

Reproduction management

MANAGER MODULE

One of the top priorities for a dairy farmer is reproductive management. It is important that the reproductive system should not be seen in isolation, but as part of the entire animal and its environment.

A good understanding of the anatomy and physiology, as well as the production cycle of both the male and female animal, is essential for managing reproduction successfully, as this is basically controlled



Knowledge

- Introductory concepts of reproduction on South African dairy farms
- Anatomy of the bovine reproductive system
- Basic reproductive physiology
- The production cycle of female and male dairy animals
- Bovine reproductive diseases and syndromes
- Reproduction management



Practical skills

- Work with the reproductive life cycles of dairy animals
- Manage reproduction-related risks (diseases and syndromes) on a dairy farm
- Manage reproduction-related activities on a dairy farm
- Manage the breeding programme on a dairy farm



Work experience

- Assist with and observe reproduction management on a dairy farm for a period of two weeks
- Perform reproduction management activities on a dairy farm under supervision for a period of a month
- Manage reproduction on a dairy farm under normal supervisory and management conditions for a period of one month

The person will be expected to engage in the following management activities and report at meetings:

- assessment of female and male reproductive cycles;
- health risks of female and male dairy animals, including reproductive diseases and syndromes;
- keeping and interpret-

ing of reproduction records with regard to the indices of reproductive efficiency and financial impact;

- planning nutrition and culling of dairy animals in the specific herd;
- keeping, interpreting and integrating milk-recording data with regard to reproduction;
- breeding methods, including natural service, artificial insemination, as well as synchronisation;
- heat detection, including accuracy, intensity and methods to improve heat detection; and
- artificial insemination, including the following: factors affecting the health condition and fertility of the cow, oestrus/heat detection, and the routine monitoring of reproductive performance.

by endocrine glands and the hormones they secrete.

Metabolic diseases, as well as infectious causes of infertility, the treatment of functional infertility, repeat breeders and heat stress all have an effect on reproduction. Potential complications during gestation, calving and the post-partum period must be considered as well as best management practices to deal with them.

Although natural service is not common practice on dairy farms, bull selection is still important because the bulls' performance and management will affect reproductive outcomes.

Reliable detection of cows on heat (oestrus) is a key factor for successful breeding in herds and is commonly accepted as the single most important factor for reproductive improvement in

most of the dairy farms. There are various synchronisation programmes that can be used to overcome the problems and limitations associated with visual oestrus detection.

The dairy industry has benefited greatly from the use of artificial insemination (AI) because of the very rigorous selection of the bulls that is used before the bulls are allowed into the AI line-up. The timing of insemination, important guidelines to follow during AI, such as how to handle frozen semen, are discussed.

Routine monitoring of reproductive performance is one of the critical control points that will ensure the profitability of the dairy farm. An efficient record-keeping system, as well as a good veterinary-client relationship, is crucial.

NQF Level 5

MODULE 13

Biosecurity management

MANAGER MODULE

Biosecurity is a system of management practices used to prevent the entry of disease-causing agents. It therefore protects the health of the herd and the quality of the end product produced for the consumer. Bio-containment is a system of management practices used to prevent the spread of disease between groups of animals on a dairy farm. Recognising and understanding all aspects of potential biosecurity breaches are essential to managing a successful biosecurity programme. There are various risks associated with dairy and the cost

of disease must be taken into account in order to improve the profitability of the dairy farm. A structured vaccination programme, as well as the training of employees with regard to crucial biosecurity measures, will contribute to maintaining a healthy herd. Assessing the biosecurity status of your farm will help to identify the most prominent areas that require attention and to formulate a formal biosecurity plan with a view to implementation.

NQF Level 5



Knowledge

- The state of biosecurity in South Africa
- Risks associated with dairy and the cost of disease
- Basics of biosecurity with regard to the animals, people and programmes
- Assessment of biosecurity status
- Development of a biosecurity plan



Practical skills

- Identify and manage biosecurity risks associated with dairy
- Implement biosecurity measures with regards to animals, people and programmes

- Assess the biosecurity status
- Implement and manage measures to improve biosecurity
- Develop a biosecurity plan



Work experience

- Assist with and observe biosecurity management on a dairy farm for a period of two weeks
- Perform biosecurity management activities on a dairy farm under supervision for a period of a month
- Manage biosecurity on a dairy farm under normal supervisory and management conditions for a period of one month

The person will be expected to engage in the following management activities and report at meetings:

- identifying various risks in the dairy sector;
- isolating new animals;
- testing for diseases;
- developing an immunisation programme;
- assessing the dairy farm's biosecurity status; and
- developing a biosecurity plan

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