****

**REPUBLIC OF KENYA**

**COMPETENCY-BASED MODULAR CURRICULUM**

**FOR**

**DAIRY FARM ATTENDANCE**

**KNQF LEVEL 4**

**ISCED PROGRAMME CODE: 0811 354A**

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# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social and economic development. Quality education and training contribute to the achievement of Kenya’s development blueprint and sustainable development goals.

Reforms in the education sector are necessary to achieve Kenya Vision 2030 and meet the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution, and this resulted in the formulation of the Policy Framework for Reforming Education and Training in Kenya (Sessional Paper No. 14 of 2012). A key feature of this policy is the radical change in the design and delivery of TVET training. This policy document requires that training in TVET be competency-based, curriculum development be industry-led, certification be based on demonstration of competence, and the mode of delivery allow for multiple entry and exit in TVET programmes.

These reforms demand that Industry takes a leading role in curriculum development to ensure the curriculum addresses its competence needs. It is against this background that this curriculum has been developed. For trainees to build their skills on foundational hands-on activities of the occupation, units of learning are grouped in modules. This has eliminated duplication of content and streamlined exemptions based on skills acquired as a trainee progresses in the up-skilling process, while at the same time allowing trainees to be employable in the shortest time possible through the acquisition of part qualifications.

It is my conviction that this curriculum will play a great role in developing competent human resources for the Agricultural engineering Sector’s growth and development.

**PRINCIPAL SECRETARY**

**STATE DEPARTMENT FOR TVET**

**MINISTRY OF EDUCATION**

# PREFACE

Kenya Vision 2030 aims to transform Kenya into a newly industrializing middle-income country, providing high-quality life to all its citizens by the year 2030. Kenya intends to create globally competitive and adaptive human resource base to meet the requirements of a rapidly industrializing economy through lifelong education and training. TVET has a responsibility to facilitate the process of inculcating knowledge, skills, and worker behaviour necessary for catapulting the nation to a globally competitive country, hence the paradigm shift to embrace Competency-Based Education and Training (CBET).

TVET Act, CAP 210A and Sessional Paper No. 1 of 2019 on Reforming Education and Training in Kenya for Sustainable Development emphasized the need to reform curriculum development, assessment, and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by industry, as well as increase the global competitiveness of the Kenyan labour force.

This curriculum has been developed in adherence to the Kenya National Qualifications Framework and CBETA standards and guidelines. The curriculum is designed and organized into Units of Learning with Learning Outcomes, suggested delivery methods, learning resources, and methods of assessing the trainee’s achievement. In addition, the units of learning have been grouped in modules to concretize the skills acquisition process and streamline upskilling.

I am grateful to all expert trainers and everyone who played a role in translating the Occupational Standards into this competency-based modular curriculum.

# ACKNOWLEDGMENT

This curriculum has been designed for competency-based training and has independent units of learning that allow the trainee flexibility in entry and exit. In developing the curriculum, significant involvement and support were received from expert trainers, institutions and organizations.

I recognize with appreciation the role of the National Agriculture Sector Skills Committee (NSSC) in ensuring that competencies required by the industry are addressed in the curriculum. I also thank all stakeholders in the Agriculture sector for their valuable input and everyone who participated in developing this curriculum.

I am convinced that this curriculum will go a long way in ensuring that individuals aspiring to work in the Agriculture Sector acquire competencies to perform their work more efficiently and effectively.

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**ABBREVIATIONS AND** ACRONYMS

CAADP Comprehensive Africa Agricultural Development Programme

CBET Competency Based Education and Training

CDACC Curriculum Development Assessment and Certification Council

DANIDA Danish International Development Agency

FM Farm Management

KCSE Kenya Certificate of Secondary Education

KNQA Kenya National Qualifications Authority

MESPT Micro Enterprises Support Programme Trust

MoALF Ministry of Agriculture Livestock and Fisheries

PPE Personal Protective Equipment

SSAC Sector Skills Advisory Committee

# KEY TO UNIT CODE

Sector / Industry

Sub Sector

Occupational Area

Version Control

Unit of Competence Number

ISCED level, Programme Orientation and Level of Completion

xx

x

xxx

x

x

x

# COURSE OVERVIEW

Dairy Farm Attendance level 4 consists of competencies that an individual must have to manage dairy farm. The units of learning comprising dairy farm attendance level 4 qualification include the following units:

|  |  |  |  |
| --- | --- | --- | --- |
| **UNIT CATEGORY** | **UNIT CODE** | **UNIT NAME** | **DURATION(HOURS)** |
| **MODULE I** | | | |
| Core | 0811 341 01A | Dairy forage production | 60 |
| Core | 0811 341 02A | Feeding dairy animals | 60 |
| Core | 0811 341 03A | Milking dairy animals | 60 |
| Core | 0811 341 04A | Dairy young stock rearing | 80 |
|  |  | **TOTAL** | **260** |
| **MODULE II** | | | |
| CORE | 0732 341 05A | Development of dairy farm structures | 70 |
| CORE | 0811 341 06A | Breeding of dairy animals | 70 |
| CORE | 0811 341 07A | Feeding of dairy animals | 70 |
| CORE | 0841 341 08A | Maintenance of dairy herd health | 100 |
|  |  | Industry Training | 320 |
|  |  | GRAND TOTAL | **890** |

**Entry Requirements**

An individual entering this course should have any of the following minimum requirements:

1. Kenya Certificate of Secondary Education (KCSE)

**Or**

1. National skills Certificate in dairy farm attendance Level 3

**Or**

1. Equivalent qualifications as determined by relevant regulatory body.

**Trainer Qualification**

Qualifications of a trainer for dairy farm attendance level 4 include:

1. Possession of a higher qualification than dairy farm attendance Level 4 or in related trade area; and
2. License by TVETA.

**Industry Placement/Training**

An individual enrolled in this course will be required to undergo Industry training for a minimum period of 320 hours in Dairy sector. The industrial training may be taken after completion of all units for those pursuing the full qualification or be distributed equally in each unit for those pursuing part qualification. In the case of dual training model, industrial training shall be as guided by the dual training policy.

**Assessment**

The course shall be assessed formatively and summatively:

1. During formative assessment all performance criteria shall be assessed based on performance criteria weighting.
2. Number of formative assessments shall minimally be equal to the number of elements in a unit of competency
3. Assessment of basic and common competencies shall be integrated in the core units
4. Theoretical assessment shall be integrated in practical assessment and conducted orally in both formative and summative assessments.
5. Theoretical and practical weight shall be 10:90 respectively for each unit of learning.
6. Formative and summative assessments shall be weighted at 60% and 40% respectively in the overall unit of learning score
7. Assessment performance rating for each unit of competency shall be as follows:

|  |  |
| --- | --- |
| **MARKS** | **COMPETENCE RATING** |
| 80 -100 | Attained Mastery |
| 65 - 79 | Proficient |
| 50 - 64 | Competent |
| 49 and below | Not Yet Competent |
| Y | Assessment Malpractice/irregularities |

1. Assessment for Recognition of Prior Learning (RPL) may lead to award of part and/or full qualification.

**Certification**

A candidate will be issued with a Certificate of Competency upon demonstration of competence in a core Unit of Competency. To be issued with the Kenya National TVET Certificate in Dairy Farm Attendance Level 4, the candidate must demonstrate competence in all the Units of Competency as given in the qualification pack. Statement of Attainment certificate may be awarded upon demonstration of competence in certifiable element within a unit.

These certificates will be issued by Qualification Awarding Institution

# MODULE 1

## DAIRY FORAGE PRODUCTION

**UNIT CODE:** 0811 341 01A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Produce dairy forage

**Duration of Unit:** 60 hours

**Unit Description**

This unit specifies the competencies required to produce dairy forage. It involves preparing to produce dairy forage, produce dairy forage and complete dairy forage production

**Summary of Learning Outcomes**

By the end of this unit, the learner should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to produce dairy forage | 15 |
| 2. | Produce dairy forage | 30 |
| 3. | Complete dairy forage production | 15 |
| **Total** | | **60** |

**Learning Outcomes, Content and Methods of assessment**

| **Learning Outcome** | **Content** | **Methods of assessment** |
| --- | --- | --- |
| 1. Prepare to produce dairy forage | * 1. PPEs used in forage production      1. Gloves      2. Overall      3. Head gear      4. Face mask      5. Overall.   2. Methods of land preparation      1. Land clearing      2. Ploughing      3. Harrowing      4. Levelling   3. Land preparation tools, implements and machinery      1. Rotavator      2. Cultivator      3. Disc harrow      4. Hoe      5. Drill      6. Shovel      7. Tractor      8. Ridger.   4. Planting materials      1. Types      2. Preparation   5. Soil conservation methods      1. Terracing      2. Gabions      3. Mulching      4. Contour farming.   6. Environmental protection measures   7. Occupational safety and health procedures | * Observation * Written tests * Oral questions * Product analysis * Interviewing |
| 1. Produce dairy forage | * 1. Forage types      1. Pasture      2. Fodder crops      3. Multi-purpose trees   2. Forage planting methods      1. Direct sowing      2. Under sowing      3. Oversowing.   3. Forage spacing requirements      1. Seed rates      2. Gapping   4. Pest, weed and disease control      1. Types      2. Control methods   5. Fertilizer application      1. Types of fertilizer      2. Application rates and methods      3. Time   6. Irrigation methods      1. Overhead      2. Furrow / canal      3. Drip | * Observation * Written tests * Oral questions * Product analysis * Interviewing |
| 1. Evaluate dairy forage production | * 1. Forage quantity forecasting   2. Forage judging      1. Dry matter content      2. Crude protein      3. Neutral detergent fibre      4. pH      5. acid detergent fibre   3. Forage production errors | * Observation * Written tests * Oral questions * Interviewing |
| 1. Complete dairy forage production | * 1. Forage conservation methods      1. Hay making      2. Standing hay      3. Silage making   2. Waste management | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Project
* Demonstration by trainer
* Practice by the trainee
* Field trips
* Discussions
* Direct instruction

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| **Functional dairy farm with the following:** | | |
| * Tractors * Land * Trailer * Ploughs * Harrows * Tillers * Sprayers * Rakes * Tedders | * Mowers * Forage choppers / chaff cutters * Balers * Forage harvesters * Hammer mills * Molasses * Silage silos * Forage planting materials | * Hay barn * Farm tools (Hoe, fork, rake, panga, shovel and watering cans) * Polythene sheets and tubes * Baling twines * Forage box |

## FEEDING DAIRY ANIMALS

**UNIT CODE:** 0811 341 02A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Feed dairy animals

**Duration of Unit:**60 hours

**Unit Description**

This unit specifies the competencies required to feed dairy animals. It involves preparing to feed dairy animals, feed dairy animals, evaluate dairy animal feeding and complete dairy animal feeding.

**Summary of Learning Outcomes**

By the end of this unit, the learner should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to feed dairy animals | 15 |
| 2. | Feed dairy animals | 20 |
| 3. | Evaluate dairy animal feeding | 15 |
| 4 | Complete dairy animal feeding | 10 |
| **Total** | | **60** |

**Learning Outcomes, Content and Methods of assessment**

| **Learning Outcome** | **Content** | **Methods of assessment** |
| --- | --- | --- |
| 1. Prepare to feed dairy animals | * 1. Personal Protection Equipment      1. Gloves      2. Gumboots      3. Head gear      4. overall   2. Grouping of dairy animals      1. Calves and kids      2. Heifers and doelings      3. Lactating animals (early, mid and late lactation)      4. Dry animals      5. Bulls, bucks, steers and wethers   3. Standards for dairy animal feeds   4. Occupational safety and health procedure   5. Environmental protection measures | * Observation * Written tests * Oral questions * Interviewing * Third party reports |
| 1. Feed dairy animals | * 1. Feed processing methods      1. Grinding      2. Mixing      3. Soaking      4. Pelleting.   2. Separate concentrate feeding      1. Total mixed rations      2. Partly mixed rations   3. Dairy animals feeding. | * Observation * Written tests * Oral questions * Interviewing * Third party reports |
| 1. Evaluate dairy animal feeding | * 1. Feed intake evaluation   2. Feed sampling and collection   3. Feed faults | * Observation * Written tests * Oral questions * Interviewing * Third party reports |
| 1. Complete dairy animal feeding | * 1. Feeding structures and equipment hygiene   2. Dairy feeding waste management | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Demonstration by trainer
* Practice by the trainee
* Field trips
* Discussions
* Direct instruction

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| **Functional dairy farm with the following:** | | |
| * Tractors * Trailer * Chopping implements * Feed mixers * Feed troughs | * Pasture paddocks * Water * Feed rations * Hay barn * Silage silos | * Feeding stalls * PPEs * Weighing balances and bands * Wheelbarrows * Water troughs |

## MILKING DAIRY ANIMALS

**UNIT CODE:** 0811 341 03A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Milk dairy animals

**Duration of Unit:** 60 hours

**Unit Description**

This unit specifies the competencies required to milk dairy animals. It involves preparing to milk dairy animals, milking dairy animals and complete dairy animal milking.

**Summary of Learning Outcomes**

By the end of this unit, the learner should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to milk dairy animals | 15 |
| 2. | Milk dairy animals | 30 |
| 3. | Complete dairy animal milking | 15 |
| **Total** | | **60** |

**Learning Outcomes, Content and Methods of assessment**

| **Learning Outcome** | **Content** | **Methods of assessment** |
| --- | --- | --- |
| 1. Prepare to milk dairy animals | * 1. Milking tools and equipment      1. Milking buckets      2. Sieve      3. Cans      4. Mastitis test kit      5. Strip cup      6. Teat dip cup      7. Portable milking machine   2. Milking materials and supplies      1. Milking salve      2. Udder clothes      3. Mastitis testing reagents      4. Teat dip solution      5. Restraining rope   3. Milking animals   4. Dairy cattle      1. Dairy goats      2. Camels   5. PPEs used in milking.      1. Head gear      2. Gumboots      3. Overall      4. Face mask   6. Occupational safety and health procedures | 1. Written tests 2. Observation 3. Oral questions 4. Third party reports 5. Interviewing |
| 1. Milk dairy animals | * 1. Animal restraining techniques   2. Hygienic milk production      1. Udder preparation   3. Mastitis test and prevention      1. Strip cup      2. California mastitis test.   4. Milking methods, techniques and routine      1. Hand milking      2. Machine milking   5. Post-milking activities      1. Udder disinfection      2. Milk weighing      3. Milk sieving   6. Milk storage. | * Observation * Written tests * Oral questions * Interviewing * Third party reports |
| 1. Evaluate dairy animal milking | * 1. Milk let down process   2. Hygienic practice of milking parlor and equipment   3. Milking machine maintenance | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Complete dairy animal milking | * 1. Milking parlour and equipment cleaning methods and storage   2. Documentation of milk yield   3. Waste management. | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Demonstration by trainer
* Practice by the trainee
* Field trips
* Discussions
* Direct instruction

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| **Functional dairy farm with the following:** | | |
| * Milking parlour * Milking buckets * Milk holding cans and cooling tanks * Strip cup * Carlifonia Mastitis Test (CMT) kit * Udder cloth | * Teat dip * Disinfectants * Detergents * Hand brooms, brushes and scrubbers * Water * Restraining ropes / chains | * Sieves * Waste management equipment and material * Stationery * Milk record sheets / books * PPEs * Weighing balances |

## DAIRY YOUNG STOCK REARING

**UNIT CODE:** 0811 341 04A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Rear dairy young stock

**Duration of Unit:**80 hours

**Unit Description**

This unit specifies the competencies required to rear dairy young stock. It involves preparing to rear dairy young stock, rear dairy young stock, evaluate rearing of dairy young stock and complete rearing of dairy young stock

**Summary of Learning Outcomes**

By the end of this unit, the learner should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to rear dairy young stock | 20 |
| 2. | Rear dairy young stock | 20 |
| 3. | Evaluate rearing of dairy young stock | 20 |
| 4 | Complete rearing of dairy young stock | 20 |
| **Total** | | **80** |

**Learning Outcomes, Content and Methods of assessment**

| **Learning Outcome** | **Content** | **Methods of assessment** |
| --- | --- | --- |
| 1. Prepare to rear dairy young stock | * 1. Young stock management tools, equipment, materials and supplies      1. Identification      2. Castration      3. Disbudding / dehorning      4. Hoof trimming      5. Young stock handling      6. Weighing   2. Structures for managing young stock   3. Occupational safety and health standards | * Written tests * Observation * Oral questions * Third party reports * Interviewing |
| 1. Rear dairy young stock | * 1. Young stock nutritional requirements      1. Colostrum feeding      2. Foster feeding      3. Roughage feeding   2. Identification methods      1. Ear tagging      2. Ear notching      3. Tattooing      4. Branding      5. Electronic transponders   3. Young stock health care      1. Implement vaccination programs against endemic diseases      2. Endo and Ecto - parasite control      3. Quarantining      4. Disease notification         1. Disbudding methods         2. Hot iron         3. Chemical (caustic soda)   4. Young stock handling and restraining | * Observation * Written tests * Oral questions * Interviewing * Third party reports |
| 1. Evaluate rearing of dairy young stock | * Young stock weighing * Parturition process * Dystocia | * Observation * Written tests * Oral questions * Interviewing * Third party reports |
| 1. Complete rearing of dairy young stock | * Methods of castration * Weaning process * Housing hygiene * Waste disposal | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Demonstration by trainer
* Practice by the trainee
* Field trips
* Discussions
* Direct instruction

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| **Functional dairy farm with the following:** | | |
| * Maternity pens * Ropes * Disinfectants * Navel clips * Housing pens * Feeding bottles and buckets * Weighing bands / bridge | * Identification equipment and materials * Feed rations * Holding crush * Hay barns, silos and feed stores * Cleaning materials and equipment | * Feeding stalls * Feeding and watering troughs * Water * PPEs * Waste management equipment and material |

# 

# MODULE 2

## DEVELOPMENT OF DAIRY FARM STRUCTURES

**UNIT CODE:** 0732 341 05A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Develop Dairy Farm Structures

**Duration of Unit:**50 hours

**Unit Description**

This unit specifies the competencies required to develop dairy farm structures. It involves preparing to develop dairy farm structures, develop dairy farm structures, evaluate construction of dairy farm structures and complete dairy farm structures construction

**Summary of Learning Outcomes**

By the end of this unit, the learner should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to develop dairy farm structures | 10 |
| 2. | Develop dairy farm structures | 20 |
| 3. | Evaluate construction of dairy farm structures | 10 |
| 4 | Complete dairy farm structures construction | 10 |
| **Total** | | **50** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare to develop dairy farm structures | * 1. Types of dairy enterprises      1. Pastoral      2. Peri urban   2. Site layout      1. Bush clearing      2. Levelling   3. selection of tools &equipment   4. selection of construction material & supplies   5. Occupational Safety and Health standards.   6. Environmental protection measures | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Develop dairy farm structures | * 1. Types of dairy farm structures      1. Barn      2. Milk storage room      3. Farm offices      4. Farm store   2. Types of foundations      1. Shallow foundations.      2. Deep foundations.      3. Mixing ratios of mortar   3. Types of roofs      1. Pitched roof      2. Flat roof | * Observation * Written tests * Oral questions * Interviewing |
| 1. Evaluate construction of dairy farm structures | * 1. Structure monitoring, and repair   2. Maintain farm structure hygiene | * Observation * Written tests * Oral questions * Interviewing |
| 1. Complete dairy farm structures construction | * 1. Type of materials   2. Waste management | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Demonstration by trainer
* Field trips
* Discussions
* Direct instruction
* Project

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| **Functional dairy farm with the following:** | | |
| * Tractors * Trailer * Slashers * Crowbar * Hammer * Nails * Saw | * Barbed/chain link Poles * Stones * Sand * Cement * Ballast * Tape measures | * Metal bars * Land * Live fence planting materials * Hoe * HACCP plan |

## BREEDING OF DAIRY ANIMALS

**UNIT CODE:** 0811 341 06A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Breed Dairy Animals

**Duration of Unit:**40 hours

**Unit Description**

This unit specifies the competencies required to breed dairy animals. It involves preparing to breed dairy animals, breeding dairy animals, evaluating dairy animal breeding, completing dairy animal breeding.

**Summary of Learning Outcomes**

By the end of this unit, the learner should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to breed dairy animals | 10 |
| 2. | Breed dairy animals | 15 |
| 3. | Evaluate dairy animal breeding | 10 |
| 4 | Complete dairy animal breeding | 5 |
| **Total** | | **40** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare to breed dairy animals | * 1. Breeding management tools, equipment, materials and supplies      1. Identification      2. Castration      3. Handling parturition      4. Weighing      5. Artificial insemination   2. Personal Protective Equipment      1. Gloves      2. Gumboots      3. overall   3. Animals identification   4. Ear tagging   5. Tattooing   6. Ear Notching   7. Electronic transponders   8. Branding   9. Occupational safety and health standards | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Breed dairy animals | * 1. Oestrus cycle in dairy animals   2. Breeding systems      1. Pure breeding      2. Cross breeding      3. Line breeding | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Evaluate dairy animal breeding | * 1. Repeat breeders   2. Genetic disorders | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Complete dairy animal breeding | * 1. Culling criterion dairy animals   2. Surplus Materials and supplies management   3. Waste management | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Demonstration by trainer
* Project
* Field trips
* Discussions
* Direct instruction

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| **Functional dairy farm with the following:** | | |
| * AI services * PPEs * Weighing bands * Identification equipment and materials * Navel clips * Holding crush | * Breeding males * Feed rations * Breeding records * Stationery * PPEs * Maternity pens * Water | * Weighing band * Breeding calendar * Disinfectants * Livestock Production Manual * Ropes * Livestock Production Manual * HACCP plan |

## FORMULATION OF DAIRY FEED

**UNIT CODE:** 0811 341 07A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Formulate Dairy Feed

**Duration of Unit:** 50 hours

**Unit Description**

This unit specifies the competencies required to formulate dairy feed. It involves preparing to formulate dairy feed, formulating dairy feed, evaluating dairy feed formulation and completing dairy feed formulation.

**Summary of Learning Outcomes**

By the end of this unit, the learner should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to formulate dairy feed | 10 |
| 2. | Formulate dairy feed | 15 |
| 3. | Evaluate dairy feed formulation | 15 |
| 4 | Complete dairy feed formulation | 10 |
| **Total** | | **50** |

**Learning Outcomes, Content and Suggested Assessment Methods**

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare to formulate dairy feed | * 1. Feed formulation tools, equipment, materials and supplies      1. Feedstuff sampling      2. Ration package labelling      3. Feed processing      4. Feed mixing      5. weighing | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Formulate dairy feed | 1. 2.1. Preparing and processing of feed ingredients 2. 2.2. Feed mixing rations 3. 2.3. Feeds packaging and storage | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Evaluate feed formulation | * 1. Feed ration sampling   2. Feed ration judging | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Complete dairy feed formulation | * 1. Good manufacturing practices   2. Waste product management | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Demonstration by trainer
* Field trips
* Discussions
* Direct instruction
* Assignment

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| **Functional dairy farm with the following:** | | |
| * Tractors * Trailer * Chopping implements * Hammer mills * Grinding mills * Feed mixers * Feedstuff * Detergents * Fumigants | * Water * Packaging material * Labels * Feed stores * Stationery * Weighing balances * Pest control equipment and materials | * Pelleting machines * Sampling kits * Gunny bags * Twines * PPEs * Livestock Production Manual * HACCP plan * Public Health Act Cap 254. |

## MAINTENANCE OF DAIRY HERD HEALTH

**UNIT CODE: 0841 341 08A**

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Maintain Dairy Herd Health

**Duration of Unit:**30 hours

**Unit Description**

This unit specifies the competencies required to maintain dairy herd health. It involves preparing to maintain dairy herd health, maintaining dairy herd health, evaluating maintenance of dairy herd health and completing maintenance of dairy herd health.

**Summary of Learning Outcomes**

By the end of this unit, the learner should be able to:

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to maintain dairy herd health | 5 |
| 2. | Maintain dairy herd health | 10 |
| 3. | Evaluate maintenance of dairy herd health | 10 |
| 4 | Complete maintenance of dairy herd health | 5 |
| **Total** | | **30** |

**Learning Outcomes, Content and Suggested Assessment Methods**

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| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare to maintain dairy herd health | * 1. Herd health management tools, equipment, materials and supplies   2. Herd health management structures      1. Crush      2. Foot bath      3. Spray race      4. Cattle dip   3. Occupational safety and health regulations | 1. Written tests 2. Observation 3. Oral questions 4. Third party report 5. Interviewing |
| 1. Maintain dairy herd health | * 1. Biosecurity measures in dairy      1. Foot baths      2. Isolation pens/paddocks      3. Fencing      4. Disinfection/fumigation      5. Parasite and pest control      6. Proper disposal of dead animals   2. Types of parasites      1. Internal parasites      2. External parasites         1. Internal parasites control methods   Chemical  Biological  Integrated   * + - 1. External parasites control   1. Vaccination programmes   2. Disbudding methods      1. Hot iron      2. Chemical (caustic soda)   3. Dehorning procedures      1. Dehorning wire      2. Dehorning saw      3. Cauterization   4. Hoof trimming procedure   5. Quarantine of procedures   6. Animal Handling | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Evaluate maintenance of dairy herd health | * 1. Physical signs of ill health   2. Disease reporting | 1. Observation 2. Written tests 3. Oral questions 4. Interviewing 5. Third party report |
| 1. Complete maintenance of dairy herd health | * 1. Health records   2. Cleaning and sterilization of herd health management equipment   3. Waste management | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Demonstration by trainer
* Assignment
* Field trips
* Discussions
* Direct instruction

**Recommended Resources**

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| **Functional dairy farm with the following:** | | |
| * Holding crush * Ropes * Disinfectants * Navel clips * Scapels * Cleaning materials and equipment * Weighing bands * Hoof triming tools, equipment and structures | * Dewormers * Drenching and bolus guns * Acaricides * Plunge dip and spray race * Spayers * Waste management equipment and material * Grooming tools and equipment | * Herd health records * Stationery * Water * Disbudding and dehorning tools and materials * PPEs * Livestock Production Manual |