****

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARDS**

**FOR**

**DAIRY FARM MANAGER**

**LEVEL 5**



TVET CDACC

P.O. BOX 15745-00100

NAIROBI

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# FOREWORD

The provision of quality education and training is fundamental to the Government’s overall strategy for social economic development. Quality education and training will contribute to achievement of Kenya’s development blueprint, Vision 2030 and sustainable development goals.

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. The education sector had to be aligned to the Constitution of Kenya 2010 and this resulted to the formulation of the Policy Framework for Reforming Education and Training. A key feature of this policy is the radical change in the design and delivery of the 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 mode of delivery allows 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 these Occupational Standards were developed for the purpose of developing a competency-based curriculum for Dairy Farm Management. These Occupational Standards will also be the basis for assessment of an individual for competence certification.

It is my conviction that these Occupational Standards will play a great role towards development of competent human resource for the Agriculture sector’s growth and sustainable development.

**PRINCIPAL SECRETARY, VOCATIONAL AND TECHNICAL TRAINING**

**MINISTRY OF EDUCATION**

# PREFACE

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

The Technical and Vocational Education and Training Act No. 29 of 2013 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET in order to address the mismatch between skills acquired through training and skills needed by industry as well as increase the global competitiveness of Kenyan labor force.

The TVET Curriculum Development, Assessment and Certification Council (TVET CDACC), in conjunction with Dairy Sector Skills Advisory Committee (SSAC), German International Cooperation and Ministry of Agriculture, Livestock and Fisheries have developed these Occupational Standards for Dairy Farm Manager. TVET CDACC in conjunction with Micro Enterprises Support Programme Trust (MESPT) have reviewed these Occupational Standards and incorporated Food Safety. These standards will be the basis for development of competency-based curriculum for Dairy Farm Management Level 5.

The occupational standards are designed and organized with clear performance criteria for each element of a unit of competency. These standards also outline the required knowledge and skills as well as evidence guide.

I am grateful to the Council Members, Council Secretariat, Dairy SSAC, Food Safety SSAC, expert workers and all those who participated in the development and review of these occupational standards.

**CHAIRPERSON, TVET CDACC**

# ACKNOWLEDGMENT

These Occupational Standards were developed through combined effort of various stakeholders from private and public organizations. I am thankful to the management of these organizations for allowing their staff to participate in this course. I wish to acknowledge the invaluable contribution of industry players who provided inputs towards the development of these Standards.

I thank TVET Curriculum Development, Assessment and Certification Council (TVET CDACC) for providing guidance on the development of these Standards. My gratitude goes to Dairy and Food Safety Sector Skills Advisory Committee (SSAC) members for their contribution to the development of these Standards. I thank all the individuals and organizations who participated in the validation of these Standards.

My gratitude also goes to NEPAD Planning and Coordinating Agency (NPCA) of the Africa Union Commission and German Ministry of Economic Cooperation and Development (BMZ) through its implementing agency German International Cooperation (GIZ) GmbH which enabled the development of these Standards through the CAADP ATVET project.

I also appreciate the office of the National Coordinator of GIZ CAADP ATVET Project which was instrumental in the cooperation between the project team, Ministry of Agriculture, Livestock and Fisheries (MoALF) and Ministry of Education.

Much gratitude goes to Micro Enterprises Support Program Trust (MESPT) who initiated the review process and the incorporation of Food Safety in the Occupational Standards. I acknowledge the Danish International Development Agency (DANIDA) and the European Union (EU) who sponsored the review process.

I acknowledge all other institutions which in one way or another contributed to the development of these Standards.

**CHAIRPERSON**

**DAIRY SECTOR SKILLS ADVISORY COMMITTEE**

# ACRONYMS

ATVET Agricultural Technical and Vocational Education and Training

BC Basic Competency

CAADP Comprehensive Africa Agricultural Development Programme

CDACC Curriculum Development, Assessment and Certification Council

CR Core Competency

DA Dairy

DANIDA Danish International Development Agency

EMCA Environment Management Coordination Act

FM Farm Management

GIZ German International Cooperation

ICT Information Communication Technology

MESPT Micro Enterprises Support Programme Trust

OS Occupational Standards

OSH Occupation Safety and Health

OSHA Occupation Safety and Health Act

OSHS Occupational Safety and Health Standards

PPE Personal Protective Equipment

SSAC Sector Skills Advisory Committee

TVET Technical and Vocational Education and Training

# KEY TO UNIT CODE

**DA /OS /FM /BC/CR /01/ 5/B**

Industry or sector

Occupational Standards

Occupational area

Type of competency

Competency number

Competency level

Version control

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# OVERVIEW

Dairy Farm Management Level 5 consists of competencies that an individual must achieve to supervise activities in a dairy farm. It entails developing and maintaining dairy farm structures; producing dairy forage; formulating dairy feed; feeding, milking and breeding dairy animals; raising young stock; and maintaining dairy herd health.

This qualification consists of the following basic and core competencies:

**BASIC COMPETENCIES**

|  |  |
| --- | --- |
| **UNIT CODE** | **UNIT NAME** |
| DA/OS/FM/BC/01/6/B | Demonstrate communication skills |
| DA/OS/FM/BC/02/6/B | Demonstrate numeracy skills |
| DA/OS/FM/BC/03/6/B | Demonstrate digital literacy |
| DA/OS/FM/BC/04/6/B | Demonstrate entrepreneurial skills |
| DA/OS/FM/BC/05/6/B | Demonstrate employability skills |
| DA/OS/FM/BC/06/6/B | Demonstrate environmental literacy |
| DA/OS/FM/BC/07/6/B | Demonstrate occupational safety and health practices |

**CORE COMPETENCIES**

|  |  |
| --- | --- |
| **UNIT CODE** | **UNIT NAME** |
| DA/OS/FM/CR/01/6/B | Develop dairy farm structures |
| DA/OS/FM/CR/02/6/B | Produce dairy forage |
| DA/OS/FM/CR/03/6/B | Breed dairy animals |
| DA/OS/FM/CR/04/6/B | Formulate dairy feed |
| DA/OS/FM/CR/05/6/B | Feed dairy animals |
| DA/OS/FM/CR/06/6/B | Milk dairy animals |
| DA/OS/FM/CR/07/6/B | Rear dairy young stock |
| DA/OS/FM/CR/08/6/B | Maintain dairy herd health |

# BASIC UNITS OF COMPETENCY

# 

# DEMONSTRATE COMMUNICATION SKILLS

**UNIT CODE:** DA/OS/FM/BC/01/5/B

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate communication skills. It involves meeting communication needs of clients and colleagues, contributing to the development of communication strategies, conducting workplace interviews, facilitating group discussions and representing the organization

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Meet communication needs of clients and colleagues | 1. Specific communication needs of clients and colleagues are identified and met based on workplace requirements 2. Different communication approaches are identified and applied according to clients’ needs 3. Conflict is identified and addressed as per the standards of the organization |
| 1. Contribute to the development of communication strategies | 1. Strategies for internal and external dissemination of information are developed, promoted, implemented and reviewed as per organizations’ strategic plan 2. Channels of communication are established and reviewed based on the workplace needs 3. Communication training needs are identified and provided according to SOPs 4. Work related network and relationship are maintained based on workplace requirements 5. Negotiation and conflict resolution strategies are maintained as per the workplace procedures |
| 1. Conduct workplace interviews | 1. ***Communication strategies*** are identified and employed in ***interview situations*** based on workplace requirements 2. Records of interviews are made and maintained in accordance with organizational procedures 3. Effective questioning, listening and nonverbal communication techniques are used based on needs |
| 1. Facilitate group discussions | 1. Mechanisms to enhance ***effective group interaction*** are identified and implemented according to workplace requirements 2. Strategies to encourage group participation are identified and used as per organizations’ procedures 3. Meetings objectives and agenda are set and followed based on workplace requirements 4. Relevant information is provided and feedback obtained according to set protocols 5. Evaluation of group communication strategies is undertaken in accordance with workplace guidelines 6. Specific communication needs of individuals are identified and addressed as per individual needs |
| 1. Represent the organization | 1. Relevant presentation are researched and presented based on internal or external communication forums requirements Presentation is delivered in a clear and sequential manner as per the predetermined time 2. Presentation is made as per appropriate media 3. Difference views are respected based on workplace procedures 4. Written communication is done as per organizational standards 5. Inquiries are responded according to organizational standard |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Communication strategies may include but not limited to: | * Language switch * Comprehension check * Repetition * Asking confirmation * Paraphrase * Clarification request * Translation * Restructuring * Approximation * Generalization |
| 1. Effective group interaction may include but not limited to: | * Identifying and evaluating what is occurring within an interaction in a non-judgmental way * Using active listening * Making decision about appropriate words, behavior * Putting together response which is culturally appropriate * Expressing an individual perspective * Expressing own philosophy, ideology and background and exploring impact with relevance to communication * Openness and flexibility in communication |
| 1. Interview situations may include but not limited to: | * Establishing rapport * Eliciting facts and information * Facilitating resolution of issues * Developing action plans * Diffusing potentially difficult situations |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Active listening
* Giving/receiving feedback
* Interpretation of information
* Role boundaries setting
* Negotiation
* Communication

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Communication process
* Dynamics of groups and different styles of group leadership
* Communication skills relevant to client groups
* Flexibility in communication

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   1. Met communication needs of clients and colleagues 2. Contributed to the development of communication strategies 3. Conducted interviews 4. Facilitated group discussions 5. Represented the organization |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Observation 2. Oral questioning 3. Written test 4. Portfolio of Evidence 5. Interview 6. Third party report |
| 1. Context of Assessment | Competency may be assessed:   1. On the job 2. Off the job 3. During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE NUMERACY SKILLS

**UNIT CODE:** DA/OS/FM/BC/02/5/B

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate numeracy skills. it involves calculating with whole numbers and familiar fractions, decimals, and percentages for work estimating, measuring, and calculating with routine metric measurements for work, using routine maps and plans for work, interpreting, drawing and constructing 2D and 3D shapes for work, interpreting routine tables, graphs and charts for work, collecting data and constructing routine tables and graphs for work and using basic functions of calculator.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range.*** |
| 1. Calculate with whole numbers and familiar fractions, decimals and percentages for work | 1. Mathematical information that may be partly embedded in routine workplace tasks and texts is selected and interpreted as per SOPs 2. Whole numbers and routine or familiar fractions, decimals and percentages including familiar rates are interpreted and comprehended as per SOPs 3. Calculations which may involve a number of steps are performed as per SOPs 4. Calculations done with whole numbers and routine or familiar fractions, decimals and percentages as per SOPs 5. Conversion between equivalent forms of fractions, decimals and percentages is done as per SOPs 6. Order of operations is applied to solve multi-step calculations as per SOPs 7. Problem solving strategies are appropriately applied as per SOPs 8. Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per SOPs 9. Formal and informal mathematical language and symbolism are used to communicate the result of the task as per SOPs. |
| 2. Estimate, measure, and calculate with routine metric measurements for work | 1. Measurement information in workplace tasks and texts are selected and interpreted in accordance with workplace requirements 2. Appropriate routine measuring equipment are identified and selected in accordance with workplace requirements 3. Measurements are estimated and made using correct units as per measurement manuals. 4. Estimations and calculations done as per routine measurements 5. Conversions performed routinely as per metric units 6. Problem solving processes are used to undertake the tasks as per workplace procedures. 7. Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per workplace procedures 8. Information is recorded using mathematical language and symbols appropriate to discuss the task as per workplace procedures. |
| 3. Use routine maps and plans for work | 1. Features are identified in routine maps and plans as per SOPs 2. Symbols and keys in routine maps and plans are clearly explained as per SOPs 3. Orientation of map to North is identified and interpreted as per SOPs 4. Understanding of direction and location is clearly demonstrated as per SOPs 5. Simple scale is applied to estimate length of objects, or distance to location or object as per SOPs 6. Directions are given and received using both formal and informal language as per SOPs |
| 4. Interpret, draw and construct 2D and 3D shapes for work | 1. Two dimensional shapes and routine three dimensional shapes identified in everyday objects and in different orientations in accordance with job specifications 2. The use and application of shapes elaborately explained as per SOPs 3. Formal and informal mathematical language and symbols used to describe and compare the features of two dimensional shapes and routine three dimensional shapes as per workplace procedures. 4. Common angles identified in accordance with SOPs 5. Common angles in everyday objects are appropriately estimated as per SOPs 6. Formal and informal mathematical language are used to describe and compare common angles as per workplace procedures. 7. Common geometric instruments used to draw two dimensional shapes as per SOPs 8. Routine three dimensional objects constructed from given nets as per SOPs. |
| 5. Interpret routine tables, graphs and charts for work | 1. Routine tables, graphs and charts identified in predominately familiar texts and contexts as per tables and graph manuals 2. Common types of graphs and their different uses identified as per SOPs 3. Features of tables, graphs and charts identified as per workplace procedures 4. Information in routine tables, graphs and charts located and interpreted as per workplace procedures 5. Calculations are perform to interpret information as per SOPs 6. How statistics can inform and persuade interpretations is explained as per SOPs 7. Misleading statistical information is identified as per workplace procedures. 8. Information relevant to the workplace is discussed as per workplace procedures. |
| 6. Collect data and construct routine tables and graphs for work | 1. Features of common tables and graphs identified as per SOPs 2. Uses of ***different tables and graphs*** identified as per job specifications 3. Data and variables to be collected are determined as per workplace procedures. 4. The audience is determined as per the workplace procedures 5. Method of data collection is select as per job requirement 6. Data is collected as per SOPs 7. Information is collated in a table as per SOPs 8. Suitable scale and axes determined as per job specifications 9. Graph to present information is drafted and drawn as per SOPs 10. Data checked to ensure that it meets the expected results and context as per workplace procedures 11. Information is reported or discussed using formal and informal mathematical language as per workplace procedures |
| 7. Use basic functions of calculator | * 1. Keys are identified and used for ***basic functions on a calculator*** as per SOPs   2. Calculation is done using whole numbers, money and routine decimals and percentages as per SOPs   3. Calculation done with routine fractions and percentages as per SOPs   4. Order of operations is applied to solve multi-step calculations as per SOPs   5. Results are interpreted, displayed and recorded as per workplace procedures   6. Estimations are made to check reasonableness of problem solving process, outcome and its appropriateness to the context and task as per workplace procedures   7. Formal and informal mathematical language and appropriate symbolism and conventions used to communicate the result of the task as per workplace procedures. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Use basic functions of calculator may include but not limited to: | * Addition * Multiplication * Calculate ratios * Conversion of ratios into percentages |
| 1. Different tables and graphs may include but not limited to: | * Bar Graphs * Flow Charts * Pie Charts * Pictograph * Line Graphs * Time Series Graphs * Stem and Leaf Plot * Histogram * Dot Plot * Scatter plot |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Measuring
* Logical thinking
* Computing
* Drawing of graphs
* Applying mathematical formulas
* Analytical

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Types of common shapes
* Differentiation between two dimensional shapes / objects
* Formulae for calculating area and volume
* Types and purpose of measuring instruments
* Units of measurement and abbreviations
* Fundamental operations (addition, subtraction, division, multiplication)
* Rounding techniques
* Types of fractions
* Different types of tables and graphs
* Meaning of graphs, such as increasing, decreasing, and constant value
* Preparation of basic data, tables & graphs

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   1. Calculated correctly with whole numbers and routine or familiar fractions, decimals and percentages 2. Estimated, measured and calculated with routine metric measurements 3. Applied simple scale to estimate length of objects or distance to location or object 4. Used formal and informal mathematical language to describe and compare common angles 5. Used common geometric instruments to draw two dimensional shapes 6. Collected data and constructed routine tables and graphs 7. Used basic functions of calculator correctly |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace or appropriately simulated environment where assessment can take place 2. Materials relevant to the proposed activity or tasks |
| 1. Methods of Assessment | Competency may be assessed through:   1. Observation 2. Oral questioning 3. Written test 4. Portfolio of Evidence 5. Interview 6. Third party report |
| 1. Context of Assessment | Competency may be assessed in:   1. On the job 2. Off the job 3. Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE DIGITAL LITERACY

**UNIT CODE:** DA/OS/FM/BC/03/5/B

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate digital literacy. It involves identifying appropriate computer software and hardware, applying security measures to data, hardware, software in automated environment, applying computer software in solving tasks, applying internet and email in communication at workplace, applying desktop publishing in official assignment and preparing presentation packages.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Identify appropriate computer software and hardware | 1. Concepts of ICT are determined in accordance with computer equipment 2. Classifications of computers are determined in accordance with manufacturers specification 3. ***Appropriate computer software*** is identified according to manufacturer’s specification 4. ***Appropriate computer hardware*** is identified according to manufacturer’s specification 5. Functions and commands ofoperating system are determined in accordance withmanufacturer’s specification |
| 1. Apply security measures to data, hardware, software in automated environment | 1. ***Data security and privacy are classified*** in accordance with the prevailing technology 2. ***Security threats*** areidentified, **and *control measures*** are applied in accordance with laws governing protection of ICT 3. Computer threats and crimes are detected in accordance with Information security management guidelines 4. Protection against computer crimes is undertaken in accordance with laws governing protection of ICT |
| 1. Apply computer software in solving tasks | 1. ***Word processing concepts***are applied in resolving workplace tasks, report writing and documentation as per job requirements 2. ***Word processing utilities*** are applied in accordance with workplace procedures 3. Worksheet layout is prepared in accordance with work procedures 4. Worksheet is build and data manipulated in the worksheet in accordance with workplace procedures 5. Continuous data manipulated on worksheet is undertaken in accordance with work requirements 6. Database design and manipulation is undertaken in accordance with office procedures 7. Data sorting, indexing, storage, retrieval and security is provided in accordance with workplace procedures |
| 1. Apply internet and email in communication at workplace | 1. Electronic mail addresses are opened and applied in workplace communication in accordance with office policy 2. Office internet functions are defined and executed in accordance with office procedures 3. ***Network configuration*** is determined in accordance with office operations procedures 4. Official World Wide Web is installed and managed according to workplace procedures |
| 1. Apply desktop publishing in official assignments | 1. Desktop publishing functions and tools are identified in accordance with manufactures specifications 2. Desktop publishing tools are developed in accordance with work requirements 3. Desktop publishing tools are applied in accordance with workplace requirements 4. Typeset work is enhanced in accordance with workplace standards |
| 1. Prepare presentation packages | 1. Types of presentation packages are identified in accordance with office requirements 2. Slides are created and formulated in accordance with workplace procedures 3. Slides are edited and run in accordance with work procedures 4. Slides and handouts are printed according to work requirements |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Appropriate computer hardware may include but not limited to: | * Computer case * Monitor * keyboard * mouse |
| 1. Data security and privacy may include but not limited to: | * Confidentiality of data * Cloud computing * Integrity -but-curious data surfing |
| 1. Security and control measures may include but not limited to: | * Counter measures against cyber terrorism * Risk reduction * Cyber threat issues * Risk management * Pass wording |
| 1. Security threats may include but not limited to: | * Cyber terrorism * Hacking |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Analytical skills
* Interpretation
* Typing
* Communication
* Basic ICT skills

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Software concept
* Functions of computer software and hardware
* Data security and privacy
* Computer security threats and control measures
* Technology underlying cyber-attacks and networks
* Cyber terrorism
* Computer crimes
* Detection and protection of computer crimes
* Laws governing protection of ICT
* Microsoft suite

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Identified and controlled security threats 2. Detected and protected computer crimes 3. Applied word processing in office tasks 4. Designed, prepared work sheet and applied data to the cells in accordance to workplace procedures 5. Opened electronic mail for office communication as per workplace procedure 6. Installed internet and World Wide Web for office tasks in accordance with office procedures 7. Integrated emerging issues in computer ICT applications 8. Applied laws governing protection of ICT |
| 1. Resource Implications | The following resources should be provided:   1. Tablets 2. Laptops 3. Desktop computers 4. Calculators 5. Internet 6. Smart phones 7. Operation Manuals |
| 1. Methods of Assessment | Competency may be assessed through:   1. Written Test 2. Observation 3. Practical assignment 4. Interview/Oral Questioning |
| 1. Context of Assessment | Competency may be assessed in:   1. Off the job 2. On the job setting 3. Industrial attachment |
| 5. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE ENTREPRENEURIAL SKILLS

**UNIT CODE :** DA/OS/FM/BC/04/5/B

**UNIT DESCRIPTION**

This unit covers the competencies required to demonstrate understanding of entrepreneurship. It involves demonstrating understanding of an entrepreneur, entrepreneurship, and self-employment, identifying entrepreneurship opportunities, creating entrepreneurial awareness, applying entrepreneurial motivation, developing business innovative strategies and developing business plan.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT** | **PERFORMANCE CRITERIA** |
| 1. Demonstrate understanding of an Entrepreneur | 1. Entrepreneurs and Businesspersons are distinguished as per principles of entrepreneurship 2. ***Types of entrepreneurs*** are identified as per principles of entrepreneurship 3. Ways of becoming an Entrepreneur are identified as per principles of Entrepreneurship 4. ***Characteristics of Entrepreneurs*** are identified as per principles of Entrepreneurship 5. Factors affecting Entrepreneurship development are explored as per principles of Entrepreneurship |
| 1. Demonstrate understanding of Entrepreneurship and self-employment | 1. Entrepreneurship and self-employment are distinguished as per principles of entrepreneurship 2. Importance of self-employment is analysed based on business procedures and strategies 3. ***Requirements for entry into self-employment*** are identified according to business procedures and strategies 4. Role of an Entrepreneur in business is determined according to business procedures and strategies 5. Contributions of Entrepreneurs to National development are identified as per business procedures and strategies 6. Entrepreneurship culture in Kenya is explored as per business procedures and strategies 7. Born or made Entrepreneurs are distinguished as per entrepreneurial traits |
| 1. Identify Entrepreneurship opportunities | 1. Sources of business ideas are identified as per business procedures and strategies 2. Business ideas and opportunities are generated as per business procedures and strategies 3. Business life cycle is analysed as per business procedures and strategies 4. Legal aspects of business are identified as per procedures and strategies 5. Product demand is assessed as per market strategies 6. Types of ***business environment*** are identified and evaluated as per business procedures 7. Factors to consider when evaluating business environment are explored based on business procedure and strategies 8. Technology in business is incorporated as per best practice |
| 1. Create entrepreneurial awareness | 1. ***Forms of businesses*** are explored as per business procedures and strategies 2. Sources of business finance are identified as per business procedures and strategies 3. Factors in selecting source of business finance are identified as per business procedures and strategies 4. ***Governing policies*** on Small Scale Enterprises (SSEs) are determined as per business procedures and strategies 5. Problems of starting and operating SSEs are explored as per business procedures and strategies |
| 1. Apply entrepreneurial motivation | 1. ***Internal and external motivation*** factors are determined in accordance with motivational theories 2. Self-assessment is carried out as per entrepreneurial orientation 3. Effective communications are carried out in accordance with communication principles 4. Entrepreneurial motivation is applied as per motivational theories |
| 1. Develop innovative business strategies | 1. Business innovation strategies are determined in accordance with the organization strategies 2. Creativity in business development is demonstrated in accordance with business strategies 3. ***Innovative business strategies*** are developed as per business principles 4. Linkages with other entrepreneurs are created as per best practice 5. ICT is incorporated in business growth and development as per best practice |
| 1. Develop Business Plan | 1. Identified Business is described as per business procedures and strategies 2. Marketing plan is developed as per business plan format 3. Organizational/Management plan is prepared in accordance with business plan format 4. Production/operation plan in accordance with business plan format 5. Financial plan is prepared in accordance with the business plan format 6. Executive summary is prepared in accordance with business plan format 7. Business plan is presented as per best practice |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| 1. **Variable** | **Range** |
| 1. Types of entrepreneurs may include but not limited to: | * Innovators * Imitators * Craft * Opportunistic * Speculators |
| 1. Characteristics of Entrepreneurs may include but not limited to: | * Creative * Innovative * Planner * Risk taker * Networker * Confident * Flexible * Persistent * Patient * Independent * Future oriented * Goal oriented |
| 1. Requirements for entry into self-employment may include but not limited to | * Technical skills * Management skills * Entrepreneurial skills * Resources * Infrastructure |
| 1. Internal and external motivation may include but not limited to: | * Interest * Passion * Freedom * Prestige * Rewards * Punishment * Enabling environment * Government policies |
| 1. Business environment may include but not limited to: | * External * Internal * Intermediate |
| 1. Forms of businesses may include but not limited to: | * Sole proprietorship * Partnership * Limited companies * Cooperatives |
| 1. Governing policies may include but not limited to: | * Increasing scope for finance * Promoting cooperation between entrepreneurs and private sector * Reducing regulatory burden on entrepreneurs * Developing IT tools for entrepreneurs |
| 1. Innovative business strategies may include but not limited to: | * New products * New methods of production * New markets * New sources of supplies * Change in industrialization |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Analytical
* Management
* Problem-solving
* Root-cause analysis
* Communication

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Decision making
* Business communication
* Change management
* Competition
* Risk
* Net working
* Time management
* Leadership
* Factors affecting entrepreneurship development
* Principles of Entrepreneurship
* Features and benefits of common operational practices, e. g., continuous improvement (kaizen), waste elimination,
* Conflict resolution
* Health, safety and environment (HSE) principles and requirements
* Customer care strategies
* Basic financial management
* Business strategic planning
* Impact of change on individuals, groups and industries
* Government and regulatory processes
* Local and international market trends
* Product promotion strategies
* Market and feasibility studies
* Government and regulatory processes
* Local and international business environment
* Relevant developments in other industries
* Regional/ County business expansion strategies

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Distinguished entrepreneurs and business persons correctly 2. Identified ways of becoming an entrepreneur appropriately 3. Explored factors affecting entrepreneurship development appropriately 4. Analysed importance of self-employment accurately 5. Identified requirements for entry into self-employment correctly 6. Identified sources of business ideas correctly 7. GeneratedBusiness ideas and opportunities correctly 8. Analysed business life cycle accurately 9. Identified legal aspects of business correctly 10. Assessed product demand accurately 11. Determined Internal and external motivation factors appropriately 12. Carried out communications effectively 13. Identified sources of business finance correctly 14. Determined Governing policy on small scale enterprise appropriately 15. Explored problems of starting and operating SSEs effectively 16. Developed Marketing, Organizational/Management, Production/Operation and Financial plans correctly 17. Prepared executive summary correctly 18. Determined business innovative strategies appropriately 19. Presented business plan effectively |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place |
| 1. Methods of Assessment | Competency may be assessed through:   1. Written tests 2. Oral questions 3. Third party report 4. Interviews 5. Portfolio |
| 1. Context of Assessment | Competency may be assessed:   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE EMPLOYABILITY SKILLS

**UNIT CODE:** DA/OS/FM/BC/05/5/B

**Unit Description**

This unit covers competencies required to demonstrate employability skills. It involves conducting self-management, demonstrating interpersonal communication, critical safe work habits, leading small teams, planning and organizing work, maintaining professional growth and development, demonstrating workplace learning, problem solving skills and managing workplace ethics.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Conduct self-management | 1. Personal vision, mission and goals are formulated based on potential and in relation to organization objectives 2. Emotional intelligence is demonstrated as per workplace requirements. 3. Individual performance is evaluated and monitored according to the agreed targets. 4. Assertiveness is developed and maintained based on the requirements of the job. 5. Accountability and responsibility for own actions are demonstrated based on workplace instructions. 6. Self-esteem and a positive self-image are developed and maintained based on values. 7. Time management, attendance and punctuality are observed as per the organization policy. 8. Goals are managed as per the organization’s objective 9. Self-strengths and weaknesses are identified based on personal objectives |
| 1. Demonstrate interpersonal communication | 1. Writing skills are demonstrated as per communication policy 2. Negotiation and persuasion skills are demonstrated as per communication policy 3. Internal and external stakeholders’ needs are identified and interpreted as per the communication policy 4. Communication networks are established based on workplace policy 5. Information is shared as per communication policy |
| 1. Demonstrate critical safe work habits | 1. Stress is managed in accordance with workplace policy. 2. Punctuality and time consciousness is demonstrated in line with workplace policy. 3. Personal objectives are integrated with organization goals based on organization’s strategic plan. 4. ***Resources*** are utilized in accordance with workplace policy. 5. Work priorities are set in accordance to workplace goals and objectives. 6. Leisure time is recognized and utilized in line with personal objectives. 7. ***Drugs and substances of abuse*** are identified and avoided based on workplace policy. 8. HIV and AIDS prevention awareness is demonstrated in line with workplace policy. 9. Safety consciousness is demonstrated in the workplace based on organization safety policy. 10. ***Emerging issues*** are identified and dealt with in accordance with organization policy. |
| 1. Lead small teams | 1. Performance targets for the ***team*** are set based on organization’s objectives 2. Duties are assigned in accordance with the organization policy. 3. ***Forms of communication*** in a team are established according to organization’s policy. 4. Team performance is evaluated based on set targets as per workplace policy. 5. Conflicts are resolved between team members in line with organization policy. 6. Gender related issues are identified and mainstreamed in accordance workplace policy. 7. Human rights and fundamental freedoms are identified and respected as Constitution of Kenya 2010. 8. Healthy relationships are developed and maintained in line with workplace. |
| 1. Plan and organize work | 1. Task requirements are identified as per the workplace objectives 2. Task is interpreted in accordance with safety (OHS ), environmental requirements and quality requirements 3. Work activity is organized with other involved personnel as per the SOPs 4. Resources are mobilized, allocated and utilized to meet project goals and deliverables. 5. Work activities are monitored and evaluated in line with organization procedures. 6. Job planning is documented in accordance with workplace requirements. 7. Time is managed achieve workplace set goals and objectives. |
| 1. Maintain professional growth and development | 1. Personal training needs are identified and assessed in line with the requirements of the job. 2. ***Training and career opportunities*** are identified and utilized based on job requirements. 3. Resources for training are mobilized and allocated based organizations and individual skills needs. 4. Licensees and certifications relevant to job and career are obtained and renewed as per policy. 5. Work priorities and personal commitments are balanced and managed based on requirements of the job and personal objectives. 6. Recognitions are sought as proof of career advancement in line with professional requirements. |
| 1. Demonstrate workplace learning | 1. Learning opportunities are sought and managed based on job requirement and organization policy. 2. Improvement in performance is demonstrated based on courses attended. 3. Application of learning is demonstrated in both technical and non-technical aspects based on requirements of the job 4. Time and effort is invested in learning new skills based on job requirements 5. Initiative is taken to create more effective and efficient processes and procedures in line with workplace policy. 6. New systems are developed and maintained in accordance with the requirements of the job. 7. Awareness of personal role in workplace ***innovation*** is demonstrated based on requirements of the job. |
| 1. Demonstrate problem solving skills | 1. Creative, innovative and practical solutions are developed based on the problem 2. Independence and initiative in identifying and solving problems is demonstrated based on requirements of the job. 3. Team problems are solved as per the workplace guidelines 4. Problem solving strategies are applied as per the workplace guidelines 5. Problems are analyzed and assumptions tested as per the context of data and circumstances |
| 1. Demonstrate workplace ethics | 1. Policies and guidelines are observed as per the workplace requirements 2. Self-worth and professionalism is exercised in line with personal goals and organizational policies 3. Code of conduct is observed as per the workplace requirements 4. Integrity is demonstrated as per legal requirement |

**RANGE**

This section provides work environment and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Range** | **Variable** |
| 1. Drug and substance abuse may include but not limited to: | Commonly abused   * Alcohol * Tobacco * Miraa * Over-the-counter drugs * Cocaine * Bhang * Glue |
| 1. Feedback may include but not limited to: | * Verbal * Written * Informal * Formal |
| 1. Relationships may include but not limited to: | * Man/Woman * Trainer/trainee * Employee/employer * Client/service provider * Husband/wife * Boy/girl * Parent/child * Sibling relationships |
| 1. Forms of communication may include but not limited to: | * Written * Visual * Verbal * Non verbal * Formal and informal |
| 1. Team may include but not limited to: | * Small work group * Staff in a section/department * Inter-agency group |
| 1. Personal growth may include but not limited to: | |  | | --- | | * Growth in the job * Career mobility * Gains and exposure the job gives * Net workings * Benefits that accrue to the individual as a result of noteworthy performance | |
| 1. Personal objectives may include but not limited to: | * Long term * Short term * Broad * Specific |
| 1. Trainings and career opportunities may include but not limited to | * Participation in training programs * Technical * Supervisory * Managerial * Continuing Education * Serving as Resource Persons in conferences and workshops |
| 1. Resource may include but not limited to: | * Human * Financial * Hardware * Software |
| 1. Innovation may include but not limited to: | * New ideas * Original ideas * Different ideas * Methods/procedures * Processes * New tools |
| 1. Emerging issues may include but not limited to: | * Terrorism * Social media * National cohesion * Open offices |
| 1. Range of media for learning may include but not limited to: | * Mentoring * peer support and networking * IT and courses |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication
* Critical thinking
* Observation
* Organizing
* Negotiation
* Monitoring
* Evaluation
* Record keeping
* Problem solving
* Decision Making
* Resource utilization
* Resource mobilization

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Work values and ethics
* Company policies
* Company operations, procedures and standards
* Occupational Health and safety procedures
* Fundamental rights at work
* Personal hygiene practices
* Workplace communication
* Concept of time
* Time management
* Decision making
* Types of resources
* Work planning
* Resources and allocating resources
* Organizing work
* Monitoring and evaluation
* Record keeping
* Workplace problems and how to deal with them
* Gender mainstreaming
* HIV and AIDS
* Drug and substance abuse
* Leadership
* Safe work habits
* Professional growth and development
* Technology in the workplace
* Emerging issues
* Social media
* Terrorism
* National cohesion

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical aspects of Competency | Assessment requires evidence that the candidate:   1. Conducted self-management 2. Demonstrated interpersonal communication 3. Demonstrated critical safe work habits 4. Led small teams 5. Planned and organized work 6. Maintained professional growth and development 7. Demonstrated workplace learning 8. Demonstrated problem solving skills 9. Demonstrated workplace ethics |
| 1. Resource Implications | |  | | --- | | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place | |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Oral questioning 2. Portfolio of evidence 3. Third Party Reports 4. Written tests |
| 1. Context of Assessment | Competency may be assessed:   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE ENVIRONMENTAL LITERACY

**UNIT CODE:** DA/OS/FM/BC/06/5/B

**UNIT DESCRIPTION**

This unit describes the competencies required to demonstrate understanding of environmental literacy. It involves controlling environmental hazard, controlling control environmental pollution, complying with workplace sustainable resource use, evaluating current practices in relation to resource usage, identifying environmental legislations/conventions for environmental concerns, implementing specific environmental programs and monitoring activities on environmental protection/programs.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms*** ***are elaborated in the Range*** |
| 1. Control environmental hazard | 1. ***Storage methods*** for environmentally***hazardous*** materials are strictly followed according to environmental regulations and OSHS. 2. ***Disposal methods*** of hazardous wastes are followed always according to environmental regulations and OSHS. 3. ***PPE*** is used according to OSHS. |
| 1. Control environmental Pollution control | 1. Environmental pollution ***control measures*** are compiled following standard protocol. 2. Procedures for solid waste management are observed according to Environmental Management and Coordination Act 1999 3. Methods for minimizing ***noise pollution*** is complied with based on Noise and Excessive Vibration Pollution and Control Regulations, 2009 |
| 1. Demonstrate sustainable resource use | 1. Methods for minimizing wastage are complied with. 2. Waste management procedures are employed following principles of 3Rs (Reduce, Reuse, Recycle) 3. Methods for economizing and reducing resource consumption are practiced as per the Environmental Management and Coordination Act 1999 |
| 1. Evaluate current practices in relation to resource usage | 1. Information on resource efficiency **systems and procedures** are collected and provided to the work group where appropriate. 2. Current resource usage is measured and recorded by members of the work group. 3. Current purchasing strategies are analyzed and recorded according to industry procedures. 4. Current work processes to access information and data is analyzed following enterprise protocol. |
| 1. Identify Environmental legislations/conventions for environmental concerns | 1. Environmental ***legislations/conventions*** and local ordinances are identified according to the different ***environmental aspects/impact*** 2. ***Industrial standard/environmental practices*** are described according to the different environmental concerns |
| 1. Implement specific environmental programs | 1. Programs/Activities are identified according to organizations policies and guidelines. 2. Individual roles/responsibilities are determined and performed based on the activities identified. 3. Problems/constraints encountered are resolved in accordance with organizations’ policies and guidelines 4. Stakeholders are consulted based on company guidelines |
| 1. Monitor activities on Environmental protection/Programs | 1. Activities are periodically monitored and evaluated according to the objectives of the environmental Program 2. Feedback from stakeholders are gathered and considered in proposing enhancements to the program based on consultations 3. Data gathered are analyzed based on evaluation requirements 4. Recommendations are submitted based on the findings 5. Management support systems are set/established to sustain and enhance the program 6. Environmental incidents are monitored and reported to concerned/proper authorities |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. PPE may include but not limited to: | * Mask * Gloves * Goggles * Safety hat * Overall * Hearing protector * Safety boots |
| 1. Environmental pollution control measures may include but not limited to: | * Methods for minimizing or stopping spread and ingestion of airborne particles * Methods for minimizing or stopping spread and ingestion of gases and fumes * Methods for minimizing or stopping spread and ingestion of liquid wastes |
| 1. Waste management procedures may include but not limited to: | * Sorting * Storing of items * Recycling of items * Disposal of items |
| 1. Resources may include but not limited to: | * Electric * Water * Fuel * Telecommunications * Supplies * Materials |
| 1. Workplace environmental hazards may include but not limited to: | * Biological hazards * Chemical and dust hazards * Physical hazards |
| 1. Organizational systems and procedures may include but not limited to: | * Supply chain, procurement and purchasing * Quality assurance * Making recommendations and seeking approvals |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Observation
* Measuring
* Writing
* Communication
* Analytical
* Monitoring
* Evaluation

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* Storage methods of environmentally hazardous materials
* Disposal methods of hazardous wastes
* Usage of PPE Environmental regulations
* OSHS
* Types of pollution
* Environmental pollution control measures
* Different solid wastes
* Solid waste management
* Different noise pollution
* Methods of minimizing noise pollution
* Solid Waste Act
* Methods of minimizing wastage
* Waste management procedures
* Economizing of resource consumption
* 3Rs principle
* Types of resources
* Techniques in measuring current usage of resources
* Calculating current usage of resources
* Types of workplace environmental hazards
* Environmental regulations
* Environmental regulations applying to the enterprise.
* Measurement and recording of current resource usage
* Analysis current work processes to access information and data Analysis of data and information
* Identification of areas for improvement
* Resource consuming processes
* Determination of quantity and nature of resource consumed
* Analysis of resource flow of different parts of the resource flow process
* Use/conversion of resources
* Causes of low efficiency of use
* Increasing the efficiency of resource use
* Inspection of resource use plans
* Regulations/licensing requirements
* Determine benefit/cost for alternative resource sources
* Benefit/costs for different alternatives
* Components of proposals
* Criteria on ranking proposals
* Regulatory requirements
* Proposals for improving resource efficiency
* Implementation of resource efficiency plans
* Procedures in monitor implementation
* Adjustments of implementation plan
* Inspection of new resource usage

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Controlled environmental hazard 2. Controlled environmental pollution 3. Demonstrated sustainable resource use 4. Evaluated current practices in relation to resource usage 5. Demonstrated knowledge of environmental legislations and local ordinances according to the different environmental issues /concerns. 6. Described industrial standard environmental practices according to the different environmental issues/concerns. 7. Resolved problems/ constraints encountered based on management standard procedures 8. Implemented and monitored environmental practices on a periodic basis as per company guidelines 9. Recommended solutions for the improvement of the Program 10. Monitored and reported to proper authorities any environmental incidents |
| 1. Resource Implications | The following resources should be provided:   1. Workplace with storage facilities 2. Tools, materials and equipment relevant to the tasks (ex. Cleaning tools, cleaning materials, trash bags, etc.) 3. PPE 4. Manuals and references 5. Legislation, policies, procedures, protocols and local ordinances relating to environmental protection 6. Case studies/scenarios relating to environmental Protection |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Observation 2. Oral questioning 3. Written test 4. Interview/Third Party Reports 5. Portfolio of evidence |
| 1. Context of Assessment | Competency may be assessed:   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# DEMONSTRATE OCCUPATIONAL SAFETY AND HEALTH PRACTICES

**UNIT CODE:** DA/OS/FM/BC/07/5/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to identify workplace hazards and risk, identify and implement appropriate control measures and implement OSH programs, procedures and policies/ guidelines

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range*** |
| 1. Identify workplace hazards and risk | 1. ***Hazards*** in the workplace are identified ***based their indicators*** 2. Risks and hazards are evaluated based on legal requirements. 3. ***OSH concerns*** raised by workers are addressed as per legal requirements. |
| 1. Control OSH hazards | 1. Hazard prevention ***and control measures*** are implemented as per legal requirement. 2. Risk assessment is conductedand a risk matrix developed based on likely impact. 3. ***Contingency measures***, including ***emergency procedures*** during workplace ***incidents and emergencies*** are recognized and established in accordance with organization procedures. |
| 1. Implement OSH programs | 1. Company OSH program are identified, evaluated and reviewed based on legal requirements. 2. Company OSH programs are implemented as per legal requirements. 3. Workers are capacity built on OSH standards and procedures as per legal requirements 4. ***OSH-related records*** are maintained as per legal requirements. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Hazards may include but are not limited to: | * Physical hazards * Biological hazards * Chemical hazards * Ergonomics * Psychological factors * Physiological factors * Safety hazards * Unsafe workers’ act |
| 1. Indicators may include but are not limited to: | * Increased of incidents of accidents, injuries * Increased occurrence of sickness or health complaints/ symptoms * Common complaints of workers related to OSH * High absenteeism for work-related reasons |
| 1. Evaluation and/or work environment measurements may include but are not limited to: | * Health Audit * Safety Audit * Work Safety and Health Evaluation * Work Environment Measurements of Physical and Chemical Hazards |
| 1. OSH issues and/or concerns may include but are not limited to: | * Workers’ experience/observance on presence of work hazards * Unsafe/unhealthy administrative arrangements (prolonged work hours, no break time, constant overtime, scheduling of tasks) * Reasons for compliance/non-compliance to use of PPEs or other OSH procedures/policies/guidelines |
| 1. Prevention and control measures may include but are not limited to: | * Eliminate the hazard * Isolate the hazard * Substitute the hazard with a safer alternative * Use administrative controls to reduce the risk * Use engineering controls to reduce the risk * Use personal protective equipment * Safety, Health and Work Environment Evaluation * Periodic and/or special medical examinations of workers |
| 1. Safety gears /PPE (Personal Protective Equipment’s) may include but are not limited to: | * Arm/Hand guard, gloves * Eye protection (goggles, shield) * Hearing protection (ear muffs, ear plugs) * Hair Net/cap/bonnet * Hard hat * Face protection (mask, shield) * Apron/Gown/coverall/jump suit * Anti-static suits * High-visibility reflective vest |
| 1. Appropriate risk controls | * Eliminate the hazard altogether * Isolate the hazard from anyone who could be harmed * Substitute the hazard with a safer alternative * Use administrative controls to reduce the risk * Use engineering controls to reduce the risk * Use personal protective equipment |
| 1. Contingency measures may include but are not limited to: | * Evacuation * Isolation * Decontamination * Emergency personnel |
| 1. Emergency procedures may include but are not limited to: | * Fire drill * Earthquake drill * Basic life support/CPR * First aid * Spillage control * Decontamination of chemical and toxic * Disaster preparedness/management * Set of fire-extinguisher |
| 1. Incidents and emergencies may include but are not limited to: | * Chemical spills * Equipment/vehicle accidents * Explosion * Fire * Gas leak * Injury to personnel * Structural collapse * Toxic and/or flammable vapors emission. |
| 1. OSH-related Records may include but are not limited to: | * Medical/Health records * Incident/accident reports * Sickness notifications/sick leave application * OSH-related trainings obtained |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required Skills**

The individual needs to demonstrate the following skills:

* Communication
* Interpersonal
* Presentation
* Risk assessment
* Evaluation
* Critical thinking
* Problem solving
* Negotiation

**Required Knowledge**

The individual needs to demonstrate knowledge of:

* General OSH Principles
* Occupational hazards/risks recognition
* OSH organizations providing services on OSH evaluation and/or work environment measurements (WEM)
* National OSH regulations; company OSH policies and protocols
* Systematic gathering of OSH issues and concerns
* General OSH principles
* National OSH regulations
* Company OSH and recording protocols, procedures and policies/guidelines
* Training and/or counseling methodologies and strategies

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   1. Identified hazards in the workplace based their indicators 2. Evaluated workplace hazards based on legal requirements. 3. Addressed OSH concerns raised by workers as per legal requirements. 4. Implemented hazard prevention and control measures as per legal requirement. 5. Conducted risk assessment as per legal requirement. 6. Developed risk matrix based on likely impact. 7. Recognized and established contingency measures in accordance with organization procedures. 8. Identified, evaluated and reviewed company OSH program based on legal requirements. 9. Implemented company OSH programs as per legal requirements. 10. Capacity built workers on OSH standards and procedures as per legal requirements 11. Maintained OSH-related records as per legal requirements. |
| 1. Resource Implications | The following resources should be provided:   1. Access to relevant workplace where assessment can take place 2. Appropriately simulated environment where assessment can take place |
| 1. Methods of Assessment | Competency in this unit may be assessed through:   1. Observation 2. Oral questioning 3. Written test 4. Portfolio of Evidence 5. Interview 6. Third party report |
| 1. Context of Assessment | Competency may be assessed:   1. On-the-job 2. Off-the –job 3. During Industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

# CORE UNITS OF COMPETENCY

# DEVELOP DAIRY FARM STRUCTURES

**UNIT CODE:** DA/OS/FM/CR/01/5/B

**UNIT DESCRIPTION:**

This unit specifies the competencies required to develop dairy farm structures. It involves applying food safety measures in determination of structures to construct, constructing, siting, sourcing of construction materials, constructing and maintaining dairy farm structures.

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
| --- | --- |
| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Carry out food safety risk assessment to develop dairy farm structures | * 1. Hazard identification is carried out based on ***hazard type (s)*** andsource (s)   2. Identified hazard (s) are analyzed based on their likelihood and consequence (s)   3. Hazard control or treatment is applied based on prerequisite programs, operational prerequisite programs and HACCP plan   4. Risk management plan is communicated as per policies for internal and external communication |
| 1. Prepare to develop dairy farm structure | 1. ***Farm structure*** to be constructed is determined in accordance to the ***dairy enterprise*** and the farm ***production system.*** 2. Farm structure to be constructed is designed in accordance with the ***Livestock Production Manual*** and the code of hygienic practices for milk and milk products. 3. ***Construction materials and supplies*** are sourced in accordance with procurement procedures. 4. Tools and equipment are identified and gathered based the requirements of the job. 5. PPEs are identified and gathered based on requirements of the job and the code of hygienic practices for milk and milk products. 6. Occupational safety and health procedures are adhered to according to work place procedures and public health act 7. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures 8. Labour requirements are identified and recruited based on job to be executed. |
| 1. Develop dairy farm structure | * 1. Site is cleared based on vegetation on the ground and soil type.   2. Structure layout is measured and pegged based on design and the code of hygienic practices for milk and milk products.   3. Foundation is laid based on the type of structure.   4. Walls are erected based on the design and type of structure, the code of hygienic practices for milk and milk products and the code of practice for the animal feed industry   5. Roof is laid based on the design and type of structure, the code of hygienic practices for milk and milk products and the code of practice for the animal feed industry   6. Fittings are put in place based on design and type of enterprise, the code of hygienic practices for milk and milk products and the code of practice for the animal feed industry |
| 1. Evaluate dairy farm   structures development | * 1. Test run the structure based on the design and utility.   2. Satisfaction of the client is gauged based on job specifications and design.   3. Faults detected are reported and rectified based on standards operating procedures. |
| 1. Complete dairy farm   structure development | * 1. Construction of structure is documented and report disseminated to relevant authority based on workplace policy.   2. Reusable materials and supplies are stored as per manufacturer’s instructions   3. Non-recyclable materials and supplies are disposed of in regard to environment protection regulations. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |  |
| --- | --- | --- |
| **Variable** | **Range** | |
| 1. Farm structure includes but not limited to: | * Milking Parlour * Zero grazing unit * Holding crush * Hay barn | * Fences * Trough * Spray race * Foot baths * Tyre baths |
| 1. Dairy enterprise includes but not limited to: | * Forage production * Feed formulation * Dairy cattle production * Dairy goat production * Camel production | |
| 1. Hazard type (s) include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins   Biological   * Bacteria * Viruses * Fungi * Protozoa   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects | |
| 1. Production system includes but not limited to: | * Intensive * Semi-intensive * Extensive | |
| 1. Construction materials includes but not limited to | * Timber * Poles * Nails * Iron sheets * Barbed wire | * Stones * Gravel * Sand * Cement |
| 1. Environment protection regulations includes but not limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 | |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Food safety risk assessment and communication
* Training skills
* Measuring skills
* Masonry skills
* Carpentry skills
* Communication skills
* Negotiation skills

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Dairy enterprises
* Dairy production systems
* Area calculation
* Types of dairy farm structures
* Hazard Analysis Critical Control Point (HACCP) process
* Code of hygienic practice (s)
* Risk assessment
* Types of construction materials
  + Mixing ratios
  + Making concrete
* Dairy structure maintenance
* Waste disposal
* Environment protection regulations
* Occupational safety and health Act

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Carried out food safety measures to develop dairy farm structures   2. Interpreted layout plan and structural design accurately.   3. Identified and donned correct PPEs.   4. Accurately determined job labour requirements.   5. Measured and pegged structure layout accurately   6. Completed the construction within the set timelines   7. Mixed construction materials in the recommended ratio.   8. Observed occupational safety and health measures in the working environment   9. Observed laid down environmental protection measures at the work place.   10. Documented and maintained dairy farm development structures and food safety records. |
| 1. Resource Implications | The following resources **MUST** be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Written test   4. Portfolio of Evidence   5. Interview   6. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# DAIRY FORAGE PRODUCTION

**UNIT CODE:** DA/OS/FM/CR/02/5/B

**UNIT DESCRIPTION:**

This unit specifies the competencies required to produce dairy forage. It involves carrying out food safety measures in land preparation and forage establishment, management, conservation and storage.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| --- | --- |
| 1. Carry out food safety risk assessment to produce dairy forage | * 1. Hazard identification is carried out based on ***hazard type (s)*** andsource (s)   2. Identified hazard (s) are analyzed based on their likelihood and consequence (s)   3. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan   4. Risk management plan is communicated as per policies for internal and external communication |
| 1. Prepare to produce dairy forage | * 1. ***Forage*** to be established is determined in accordance with Agro Ecological Zone, farm plan and market demand   2. Planting land is prepared using correct ***farm tools, implements and machinery*** in accordance with the planting material   3. Soil for analysis is sampled as per sampling procedure   4. ***Safe planting materials*** are sourced in accordance with procurement procedure and laid down policies.   5. Amount of ***planting material*** and fertilizer is determined based on the acreage to be established and soil analysis report   6. Soil erosion is controlled based on topography, soil type and level of degradation.   7. PPEs are identified and gathered based on requirements of the job.   8. Occupational safety and health procedures are adhered to according to work place procedures   9. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures |
| 1. Produce dairy forage | * 1. Forage materials are planted as per Good Agricultural Practices (GAP) manual and livestock production manual   2. Planted materials is gapped as per spacing requirements   3. Weeds in forage are controlled as per GAP and the pest control products act (Cap 346)   4. Pests and diseases in forage are controlled following GAP and the pest control products act (Cap 346)   5. Planted forage is fertilized and irrigated as per soil conditions and based on ***livestock production manual***, fertilizer standards, fertilizer and animal foodstuffs Act 345 and guidelines for treated waste water used for irrigation   6. Dairy forage is harvested in accordance with the livestock production manual |
| 1. Evaluate forage production | 4.1 Quality and safety of forage is assessed based on livestock production manual  4.2 Quantity of forage produced is assessed based on livestock production Manual  4.3 ***Return on investment*** is determined as per accounting principles  4.4 Errors are detected, reported and rectified in accordance with workplace policy. |
| 1. Complete dairy forage production | 1. Dairy forage is conserved as per forage type based on the code of practice for the animal feed industry and livestock production manual 2. Dairy forage is stored as per type of conserved forage based on the code of practice for the animal feed industry and livestock production manual 3. Forage production is documented in accordance with farm procedures 4. Forage production report is prepared and disseminated to relevant authorities. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

| **Variable** | **Range** | |
| --- | --- | --- |
| 1. Forage includes but not limited to | * Pastures * Fodder crops | |
| 1. Pastures includes but not limited to | * Kikuyu * Rhodes * Star grass * Nandi Setaria | |
| 1. Fodder crops includes but not limited to | * Maize * Lucerne * Napier * Desmodium * Vetch | |
| 1. Safe Planting materials includes but not limited to | Certified, disease free   * Seeds * Seedlings * Cuttings * Splits * Tubers | |
| 1. Hazard type(s) include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins   Biological   * Bacteria * Viruses * Fungi * Protozoa   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects | |
| 1. Environment protection regulations includes but not limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 | |
| 1. Farm tools includes but not limited to: | * Hoe * Fork * Slasher * Sickle * Panga | |
| 1. Farm implements includes but not limited to: | * Trailer * Plough * Harrow * Tiller * Planter * Sprayer | * Mower * Rake * Tedder * Baler * Forage harvester |
| 1. Farm machinery includes but not limited to: | * Tractor * Lorry * Pickup | |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Food safety risk assessment and communication
* Training skills
* Measuring skills
* Agronomic skills
* Communication skills
* Basic mechanical operations
* Maintenance of forage

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Agro ecological zoning
* Types of planting materials
* Primary and secondary cultivation
* Hazard Analysis Critical Control Point (HACCP) process
* Code of hygienic practice (s)
* Risk assessment
* Mycotoxins
* Water quality
* Safe use of pesticides and herbicides
* Code of practice for the animal feed industry
* Principles of forage establishment and management
  + Methods of planting
  + Weeds, pests and diseases control methods
  + Irrigation methods
* Forage harvesting and conservation methods
* Occupational safety and health Act

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Carried out food safety measures to produce dairy forage   2. Prepared planting land to a level suitable to the planting material   3. Established forage suitable for the AE zone   4. Managed and harvested forage according to guidelines in the livestock production manual   5. Conserved and stored fodder using correct method and procedures   6. Observed occupational safety and health measures in the working environment   7. Observed laid down environmental protection measures at the work place   8. Documented and maintained dairy forage production and food safety records |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Written test   4. Portfolio of Evidence   5. Interview   6. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# BREED DAIRY ANIMALS

**UNIT CODE:** DA/OS/FM/CR/03/5/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to breed dairy animals. It involves dairy animal selection, identification, registration and reproductive management.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| --- | --- |
| 1. Prepare to breed dairy animals | * 1. ***Healthy*** dairy animals are sourced and selected based on traits of economic importance   2. Breeding management ***tools, equipment, materials*** and ***supplies*** are identified and assembled based on livestock species in accordance with the livestock production manual   3. Personal Protection Equipment and Apparel are identified and gathered based on job requirements   4. Occupational safety and health procedures are adhered to according to work place procedures   5. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures   6. Animal identification system is designed according to farm breeding procedures   7. Dairy animals are ***Identified*** in accordance with the Livestock Production Manual (LPM), animal welfare regulations and the code of practice for milk and milk products   8. Culling criteria are designed based on farm production objectives and work place policy |
| 1. Breed dairy animals | * 1. Female animals on heat are detected based on LPM   2. Dairy animals on heat are ***served*** in accordance with the LPM   3. Parturient animals are managed based on the LPM   4. Dairy animals are culled based on culling criteria |
| 1. Evaluate dairy breeding | * 1. Dairy animals are registered in accordance with regulations of relevant ***breeding organizations.***   2. Genetic gain is estimated based on data from breeding organizations   3. Errors are detected, reported and rectified based on workplace policy. |
| 1. Complete dairy animal breeding | * 1. Breeding data and activities are documented based on work place policy   2. Breeding reports are prepared and disseminated to relevant authorities.   3. Reusable materials are stored based on manufacturer’s instructions.   4. Waste is disposed of in due regard to environment protection regulations. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

| **Variable** | **Range** |
| --- | --- |
| 1. Healthy dairy animals include but not limited to: | * Disease free   + Brucellosis   + Tuberculosis * Free of abnormalities * Dairy Body conformation * Body condition score * Free of ecto and endo parasites * Free of injuries |
| 1. Tools and equipment include but not limited to | Tools and equipment required for:   * Identification * Castration * Handling parturition * Weighing * Artificial insemination |
| 1. Materials and supplies include but not limited to | Supplies and materials required for:   * Cleaning * Disinfection * Artificial Insemination * Identification |
| 1. Environment protection regulations includes but not limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 |
| 1. Identified includes but is not limited to | Marking or placing gadgets on animals that distinguish individual animals by;   * Ear tagging * Tattooing * Ear Notching * Electronic transponders * Branding |
| 1. Served includes but is not limited to | * Use of natural (bull, buck) * Artificial (insemination) * Embryo Transfer |
| 1. Breeding organizations includes but is not limited to | National bodies charged with registration of dairy animals such as:   * Kenya Livestock Breeders Organization * Breed Associations * Livestock Recording Centre * Kenya Animal Genetics Resource Centre |
| 1. Breeding data includes but is not limited to | * Pedigree records * Performance records |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Food safety risk assessment and communication
* Training skills
* Animal judging and scoring
* Animal handling
* Data handling
* Heat detection
* Artificial insemination
* Computer

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Traits of economic importance
* Methods of animal identification
* Oestrus cycle
* Basic animal health care
* Animal behaviour
* Basic animal anatomy and physiology
* Parturition process
* Animal registration procedure
* Selection and culling methods

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Estimated breeding value of healthy dairy animals according to principles of animal breeding   2. Assigned identification marks for dairy animals following recommended procedures in the livestock breeding manual   3. Identified the correct time of oestrus to serve dairy animals   4. Followed right procedures of animal registration with relevant registration organization   5. Documented correct animal pedigree and performance data   6. Observed occupational safety and health measures in the working environment   7. Observed laid down environmental protection measures at the work place |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Written test   4. Portfolio of Evidence   5. Interview   6. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# FORMULATE DAIRY FEED

**UNIT CODE:** DA/OS/FM/CR/04/5/B

**UNIT DESCRIPTION**

This unit specifies the competencies required to formulate dairy feed. It involves carrying out food safety measures in determining feed ingredients to use; assessing ingredient quality; participating in computing feed rations; processing and mixing ingredients; assessing ration quality; and packaging and storage.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| --- | --- |
| 1. Carry out food safety measures to formulate dairy feed | * 1. Hazard identification is carried out based on ***hazard type (s)*** andsource (s)   2. Identified hazard (s) are analyzed based on their likelihood and consequence (s)   3. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan   4. Risk management plan is communicated as per policies for internal and external communication |
| 1. Prepare to formulate dairy feed | * 1. Dairy feed to formulate is determined based on the ***dairy species*** and ***livestock classes.***   2. Feed formulation ***tools, equipment, materials*** and ***supplies*** are identified and assembled based on requirements of the job, feed formulation manual and the code of practice for the animal feed industry and feed standards.   3. Personal Protection Equipment and Apparel are identified and gathered based on job requirements and the code of hygiene practice for milk and milk products.   4. Occupational safety and health procedures are adhered to according to work place procedures and Public Health Act Cap 254.   5. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures   6. Feed formulation ***ingredients*** are selected and sourced based on cost, availability and nutritional values and ***standards for dairy animal feeds***.   7. Ingredients are sampled for laboratory analysis according to ***sampling procedures***   8. Packaging materials are labelled as per ***feed manufacturing guidelines*** and standards for dairy animal feeds |
| 1. Formulate dairy feed | * 1. Feed formulation method is selected based on available ingredients   2. Feed ration is formulated based on cost, feedstuff nutritional content, animal nutritional requirements, feed manufacturing guidelines and standards for dairy animal feeds.   3. Feed ingredients are prepared according to feed manufacturing guidelines and the code of practice for the animal feed industry.   4. Prepared feed ingredients are mixed as per feed manufacturing guidelines and the code of practice for the animal feed industry   5. Mixed ration is packaged as per feed manufacturing guidelines and the code of practice for the animal feed industry   6. Feed is stored in accordance with animal feed manufacturing guidelines |
| 1. Evaluate dairy feed formulation | * 1. Mixed ration is sampled for evaluation according to sampling methods   2. Feed analysis results interpreted and applied during feeding according to the livestock production manual   3. Errors are detected, reported and rectified based on workplace policy and feed formulation guidelines. |
| 1. Complete dairy feed formulation | * 1. Feed handling equipment and structures are cleaned in accordance with good manufacturing practices, work place policy and the code of practice for the animal feed industry.   2. Feed formulation records are documented in accordance with work place policy   3. Feed formulation reports are disseminated to relevant authorities in accordance with work place policy   4. Reusable materials and supplies are stored based on the manufacturer’s instructions.   5. Non-recyclable waste materials are disposed off in due regard to environment protection regulations. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

| **Variable** | **Range** |
| --- | --- |
| 1. Hazard type (s) include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins   Biological   * Bacteria * Viruses * Fungi * Protozoa   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects |
| 1. Dairy species includes but not limited to: | Livestock kept mainly for milk production:   * Cattle * Goats * Camels |
| 1. Livestock classes includes but not limited to: | Livestock categories based on:   * Age * Weight * Physiological status |
| 1. Tools and equipment includes but not limited to | Tools and equipment required for:   * Feed sampling * Feed processing * Feed mixing * Packaging and labelling * Weighing |
| 1. Materials and supplies include but not limited to | Supplies and materials required for:   * Packaging * Cleaning |
| 1. Standards for dairy animal feeds includes but not limited to: | * Dairy cattle feed supplements - specification * Dairy cattle feed premix – specification * Compounded dairy cattle feeds – specification * Compounded dairy goat feeds – specification * Code of practise for the reduction of aflatoxin B1 in raw materials and supplemental feeding stuffs for milk producing animals |
| 1. Environment protection regulations includes but not limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 |
| 1. Ingredients includes but not limited to | * Feedstuff * Additives |
| 1. Sampling procedures includes but not limited to | * Random sampling * Systematic sampling * Purposive sampling |
| 1. Feed manufacturing guidelines includes but not limited to | Animal feed regulatory authorities’ specifications on;   * Manufacturing procedures * Nutrient content * Processing procedures * Mixing procedures * Ingredient inclusion levels * Labeling * Storage |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Food safety risk assessment and communication
* Training skills
* Sampling
* Judging
* Computation
* Computer
* Mixing

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Species of dairy livestock
* Dairy animal gross anatomy and basic physiology
* Dairy animal nutrient requirements
* Hazard Analysis Critical Control Point (HACCP) process
* Relevant standards and regulations in the animal feed industry
* Animal behaviour
* Types of nutrients
* Feed classification
* Nutrient content of feedstuff
* Methods of feed formulation
* Animal feed processing procedures
* Feed mixing methods
* Guidelines of feed manufacturing

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Carried out food safety measures to formulate dairy feed   2. Identified the right feeds for particular livestock classes   3. Formulated feed ration that meets nutritional requirements for intended class of livestock   4. Feedstuff prepared in correct form of presentation   5. Feed ingredients are thoroughly mixed   6. Feed packaged and stored as recommended   7. Labeled feed packages correctly   8. Observed occupational safety and health measures in the working environment   9. Observed laid down environmental protection measures at the work place   10. Documented and maintained dairy feed formulation and food safety records. |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Written test   4. Portfolio of Evidence   5. Interview   6. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# FEED DAIRY ANIMALS

**UNIT CODE:** DA/OS/FM/CR/05/5/B

**UNIT DESCRIPTION:**

This unit specifies the competencies required to feed of dairy animals. It involves carrying out food safety measures in selection of dairy production system, grouping animals, determination of animal nutritional requirements, assembling feedstuff, determination of feeding system to use, mixing dairy ration, and implementation of feeding system and documentation of feeding.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| --- | --- |
| 1. Carry out food safety measures to feed dairy animals | * 1. Hazard identification and documentation is conducted based on ***hazard type (s)*** andsource (s)   2. Identified hazard (s) are analyzed based on their likelihood and consequence (s)   3. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan   4. Risk management plan is communicated as per policies for internal and external communication |
| 1. Prepare to feed dairy animals | * 1. ***Dairy production system*** is selected based on Agro – Ecological Zone (AEZ), available resources and farm production objectives   2. Nutritional requirements of diary animals is determined based on productivity, sex and physiological status   3. ***Dairy animals*** are grouped based on their nutritional requirements age, sex and physiological status   4. ***Feeding system*** is determined based on cost and farm size.   5. Feed safety risk assessment is carried out in accordance with the requirements of the code of practice in animal feed industry   6. ***Feed materials and supplies*** are identified based of nutritional requirements, in accordance with procurement procedures and farm policy and the ***standards for dairy animal feeds***.   7. Required **tools** and **equipment** are identified and gathered based the requirements of the job.   8. PPEs are identified and gathered based on requirements of the job.   9. Occupational safety and health procedures are adhered to according to work place procedures   10. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures |
| 1. Feed dairy animals | * 1. Feed materials are sourced based on nutritional requirements and production system and the dairy animal feed standards   2. Feed materials are prepared based on feeding system and the code of practice for the animal feed industry   3. Rations for different dairy classes are mixed according to nutritional requirements, the code of practice for the animal feed industry and the dairy animal feed standards   4. Dairy animals are fed based on their nutritional requirements, in accordance with dairy feeding manual. |
| 1. Evaluate dairy animals feeding | * 1. Feed intake is evaluated based on palatability, form and physiological status   2. Feed conversion efficiency is evaluated based on growth rate and productivity   3. Errors are detected, reported and rectified as per standard operating procedures and workplace policy. |
| 1. Complete dairy animals feeding | * 1. Feeding regime is documented as per workplace policy   2. Dairy animal feeding report is disseminated to relevant authorities based on workplace policy.   3. ***Materials*** and supplies not consumed are stored as per manufacturer’s instructions and the code of practice for the animal feed industry.   4. Waste is disposed of based on type, in regard to environment protection regulations. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |  |
| --- | --- | --- |
| **Variable** | **Range** | |
| 1. Dairy production system includes but not limited to | * Extensive * Intensive * Semi-intensive * Ranch | * Irrigation * Pastoral * Permanent housing approaches |
| 1. Dairy animals include but not limited to | * Dairy cattle * Dairy goats * Camels | |
| 1. Standards for dairy animal feedsincludes but not limited to: | * Dairy cattle feed supplements - specification * Dairy cattle feed premix – specification * Compounded dairy cattle feeds – specification * Compounded dairy goats feeds – specification * Code of practise for the reduction of aflatoxin B1 in raw materials and supplemental feeding stuffs for milk producing animals | |
| 1. Feed safety assessment includes but not limited to: | * Inspection and control procedures * Feed safety control and testing * Physical inspection | |
| 1. Environment protection regulations includes but not limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 | |
| 1. Feed materials and supplies includes but not limited to: | * Napier grass * Fodder maize * Lucerne * Salt lick | * Dairy meal * Hay * Silage * Feed additives - molasses |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Food safety risk assessment and communication
* Weighing skills
* Animal handling skills
* Feed mixing skills
* Data handling skills
* Computer skills

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Dairy animal breeds
* Animal production systems
* Agro-Ecological Zones
* Types of feeding systems and strategies
* Nutritional requirements of diary animals
  + Growth
  + Body maintenance
  + Production
* Feed conversions
* Nutritional composition of feed materials
* Hazard Analysis Critical Control Point (HACCP) process
* Relevant standards and regulations for dairy animal feeding
* Dairy animal feed intake
* Feed mixer operations
* Principles of animal nutrition
* Types of costs
* Production functions
* Profit maximization
* Labour laws
* Customer care

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Determined dairy animal nutritional requirements   2. Grouped dairy animals correctly   3. Provided required quality and quantity of feed ration to meet animal’s daily requirements   4. Carried out feed safety measures in feeding dairy animals   5. Determined labour requirements accurately   6. Documented and maintained dairy animals feeding, feeding regimes and food safety records   7. Determined dairy animal’s feed conversion efficiency   8. Observed occupational safety and health measures in the working environment   9. Observed laid down environmental protection measures at the work place |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Written test   4. Portfolio of Evidence   5. Interview   6. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment.   * 1. Off-the-job / Institutional   2. Industrial attachment   3. On-the-job |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MILK DAIRY ANIMALS

**UNIT CODE:** DA/OS/FM/CR/06/5/B

**UNIT DESCRIPTION:**

This unit specifies the competencies required to milk dairy animals. It involves carrying out food safety measures in assembling milking equipment, restraining the animal, preparing their udder and testing for mastitis; milking the animal and disinfecting udder; weighing the milk, sieving and storage; cleaning the parlour, milking machine and equipment; and documenting milk production.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| --- | --- |
| 1. Carry out food safety measures to milk dairy animals | * 1. Hazard identification is carried out based on ***hazard type (s)*** andsource (s)   2. Identified hazard (s) are analyzed based on their likelihood and consequence (s)   3. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan   4. Risk management plan is communicated as per policies for internal and external communication |
| 1. Prepare to milk dairy animals | 1. ***Milking tools and equipment*** are assembled based on the milking method, species of dairy animal and the code of hygienic practice for milk and milk products. 2. ***Milking materials*** and ***supplies*** assembled based on the milking method and the code of hygienic practice for milk and milk products. 3. ***Milking animals*** are assembled in accordance with livestock production manual. 4. PPEs are identified, gathered and worn based on requirements of the job and the code of hygienic practice for milk and milk products. 5. Occupational safety and health procedures are adhered to according to work place procedures as per the regulations of the public health, 6. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures |
| 1. Milk dairy animals | * 1. Milking animals are restrained according to animal welfare regulations   2. Udder is prepared according to the livestock production manual and the code of hygienic practice for milk and milk products.   3. Milking animals tested for mastitis infection according to the code of hygienic practice for milk and milk products.   4. Milking animals are milked based on method of milking as per livestock production manual and the code of hygienic practice for milk and milk products.   5. Milked animal’s udder quarters are disinfected as per livestock production manual and the code of hygienic practice for milk and milk products   6. Milk is weighed and sieved in accordance with livestock production manual and the code of hygienic practice for milk and milk products.   7. Milk is stored and cooled based on the livestock production manual and the code of hygienic practice for milk and milk products.   8. ***Milking equipment*** are cleaned and stored as per standard operating procedures and the code of hygienic practice for milk and milk products   9. Milking parlour is cleaned as per livestock production manual and workplace policy and the code of hygienic practice for milk and milk products. |
| 1. Evaluate dairy animal milking | * 1. ***Average time taken to milk*** is determined based livestock production manual.   2. Errors are detected, reported and rectified based on workplace policy   3. Cleanliness of milk, milk parlor and equipment is assessed based on workplace policy and the code of hygienic practice for milk and milk products. |
| 1. Complete dairy animal milking | * 1. Milking is documented according to livestock production manual and work place policy   2. Reusable materials and supplies are stored as manufacturer’s instructions manual, workplace policy and the code of hygienic practice for milk and milk products.   3. Waste is disposed of in regard to environment protection regulations and the code of hygienic practice for milk and milk products. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

| **Variable** | **Range** |
| --- | --- |
| 1. Hazard type(s) include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins   Biological   * Bacteria * Viruses * Fungi * Protozoa   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects |
| 1. Dairy animals include but not limited to | * Dairy cattle * Dairy goat * Camels |
| 1. Milking equipment includes but not limited to | * Milking buckets * Sieve * Milking cans * Mastitis test kit * Strip cup |
| 1. Milking materials and supplies includes but not limited to | * Milking salve * Udder clothes |
| 1. Average time taken to milk | * 7 to 10 minutes |
| 1. Environment protection regulations includes but not limited to | * EMCA 1999 * Public health act * OSH Act 2007 |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Weighing
* Food safety risk assessment and communication
* Animal handling and restraint
* Milking technique
* Cleaning
* Communication

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Methods of milking
* Milk let down
* Hygienic milk production
* Hazard Analysis Critical Control Point (HACCP) process
* Code of hygienic practice for milk and milk products
* Mastitis management
* Udder health
* Types of disinfectants
* Milking machine operation and maintenance
* Animal welfare
* Occupational safety and health Act
* Documentation
* Record keeping

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Carried out food safety risk assessment to milk dairy animals   2. Restrained the milking animal.   3. Tested milking animal for mastitis before milking   4. Disinfected udder after milking   5. Used correct milking techniques   6. Operated milking machine in accordance with user’s manual   7. Observed occupational safety and health measures in the working environment   8. Observed laid down environmental protection measures at the work place   9. Documented and maintained milking and food safety records. |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Written test   4. Portfolio of Evidence   5. Interview   6. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# REAR DAIRY YOUNG STOCK

**UNIT CODE:** DA/OS/FM/CR/07/5/B

**UNIT DESCRIPTION:**

This unit specifies the competencies required to rear dairy young stock. It involves steaming up, parturition handling, feeding, identification, housing, weaning and routine management activities for young stock.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| --- | --- |
| 1. Prepare to rear dairy young stock | * 1. ***Young stock*** rearing ***tools, equipment, materials*** and ***supplies*** are identified and assembled based on livestock species in accordance with the livestock production manual   2. Structures for rearing young stock are identified and prepared in accordance with the livestock production manual   3. Labor for rearing young stock are identified and allocated based on dairy enterprises requirements   4. Personal Protection Equipment and Apparel are identified and gathered based on job requirements   5. Occupational safety and health procedures are adhered to according to work place procedures   6. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures   7. Additional nutrition is provided to dams within the last trimester of gestation livestock production manual (LPM)   8. ***Female animals*** showing signs of imminent parturition are identified and separated according to the livestock production manual   9. Dams with difficult parturition are identified and assisted according to the livestock production manual |
| 1. Rear dairy young stock | * 1. Neonates are handled at birth according to instructions in the LPM   2. Neonates are fed adequate amounts of colostrum according to the LPM   3. Orphaned neonates are foster fed according to instructions in the LPM   4. Young stock is ***identified*** using suitable method in accordance with LPM, animal welfare regulations and work place policy   5. Young stock is housed based on production system, prevailing climatic conditions and age within LPM standards   6. Young stock is introduced to roughage feeding in accordance with LPM   7. Young stock are de-budded and extra mammary teats removed in accordance with animal welfare regulations and work place policy   8. Young stock disease management is carried out based on animal disease Act (Cap 364)   9. Young males unsuitable for breeding are castrated based on animal welfare regulations, LPM and workplace policy   10. Young stock are weaned in accordance with the LPM |
| 1. Evaluate rearing of dairy young stock | * 1. Young stock are weighed in accordance with LPM instructions and work place policy   2. Young stock growth rate is monitored in accordance with principles of animal nutrition and breeding   3. Errors are detected, reported and rectified based on workplace policy in accordance with principles of animal nutrition and breeding. |
| 1. Complete rearing of dairy young stock | * 1. Young stock rearing activities are documented according to livestock production manual and workplace policy   2. Young stock rearing equipment are cleaned and stored as per standard operating procedures   3. Young stock pens are cleaned as per livestock production manual and workplace policy.   4. Reusable materials and supplies are stored as manufacturer’s instructions manual and workplace policy.   5. Waste is disposed of in regard to ***environment protection regulations.*** |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Young Stock includes but not limited to: | Offspring of the following between birth and weaning:   * Cattle * Goats * Camels |
| 1. Tools and equipment includes but not limited to | Tools and equipment required for:   * Identification * Castration * Disbudding / dehorning * Hoof trimming * Young stock handling * Weighing |
| 1. Materials and supplies include but not limited to | * Feed – milk replacers, pellets, pencils, mineral supplements * Dewormers * Cleaning materials |
| 1. Female animals include but not limited to | Females of:   * Cattle * Goats * Camels |
| 1. Environment protection regulations includes but not limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 |
| 1. Neonate includes but not limited to | The young ones at birth of the following:   * Cattle * Goats * Camels |
| 1. Identified includes but not limited to | Markings or gadgets on animals for purposes of distinguishing individual animals:   * Ear tagging * Tattooing * Ear Notching * Electronic transponders * Branding |
| 1. Disease management includes but not limited to: | * Vaccination * Disinfection * Quarantine * Isolation * Culling * Nutrition * Treatment * Disposal * Slaughtering |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Food safety risk assessment and communication
* Animal handling
* Farm equipment operation skills
* Animal health applied skills

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Animal nutritional requirements
* Immunology
* Animal gross anatomy and basic physiology
* Animal health care
* Disease management
* Reproductive cycle
* Methods of animal identification
* Animal growth rate
* Animal welfare
* Castration methods

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Identified females showing signs of imminent parturition   2. Identified females requiring assistance to parturate   3. Implemented recommended young stock feeding regime   4. Weaned young stock using right procedure at correct age and body weight   5. Carried out disease management on young stock   6. Observed occupational safety and health measures in the working environment   7. Observed laid down environmental protection measures at the work place |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Written test   4. Portfolio of Evidence   5. Interview   6. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MAINTAIN DAIRY HERD HEALTH

**UNIT CODE:** DA/OS/FM/CR/08/5/B

**UNIT DESCRIPTION:**

This unit specifies the competencies required to maintain dairy herd health. It involves carrying out food safety measures in farm bio-security, parasite control, vaccination, disease control and animal grooming.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| --- | --- |
| 1. Carry out food safety measures to maintain dairy herd health | * 1. Hazard identification is carried out based on ***hazard type (s)*** andsource (s)   2. Identified hazard (s) are analyzed based on their likelihood and consequence (s)   3. Hazard control or treatment is applied based on prerequisite programmes, operational prerequisite programmes and HACCP plan   4. Risk management plan is communicated as per policies for internal and external communication |
| 1. Prepare to maintain dairy herd health | * 1. ***Bio-security measures*** are designed according to regulations of NEMA, Kenya Veterinary Board (KVB) and work place policy   2. Herd health maintenance ***tools, equipment, materials*** and ***supplies*** are identified and assembled based on livestock species in accordance with the livestock production manual   3. Structures for herd health maintenance are identified and prepared in accordance with the livestock production manual and code of hygienic practices for milk and milk products   4. Personal Protection Equipment and Apparel are identified, gathered and worn based on job requirements code of hygienic practices for milk and milk products   5. Occupational safety and health procedures are adhered to according to work place procedures   6. Environmental protection measures are observed according to ***environment protection regulations*** and work place procedures |
| 1. Maintain dairy herd health | * 1. Bio-security measures are implemented based on design in accordance with ***public health regulations***   2. Internal and external parasites are controlled in dairy herds in accordance with the livestock production manual (LPM)   3. Dairy herd vaccination schedule is designed based on local area veterinary reports and Animal disease Act (Cap 364)   4. Dairy herd ***vaccination schedule*** is implemented in accordance with permitted animal health procedures and practices and Animal Disease Act (Cap 364)   5. Identify and attend to sick animals as per the LPM, animal welfare regulations and Animal Disease Act (Cap 364)   6. Quarantine animals suffering from notifiable diseases as per the LPM, animal welfare regulations and Animal Disease Act (Cap 364)   7. Overgrown ***dairy animal*** hooves are trimmed as per the LPM and animal welfare regulations   8. Overgrown dairy animal horns cut as per the LPM and animal welfare regulations   9. Dairy animals are ***groomed*** according to the LPM and work place policy |
| 1. Evaluate maintenance of dairy herd health | * 1. Prevalence of dairy herd parasites and diseases is reviewed as per work place policy and Animal Disease Act (Cap 364)   2. Parasite and disease control measures are redesigned based on review reports and Animal Disease Act (Cap 364) |
| 1. Complete maintenance of dairy herd health | 1. Herd health maintenance practices are documented in accordance with work place policy and Animal Disease Act (Cap 364) 2. Herd health maintenance reports are disseminated to relevant authorities in accordance with work place policy. 3. Waste is disposed with due regard to environment protection regulations. 4. Materials and supplies not consumed are stored in accordance to manufacturer’s instructions. |

**RANGE**

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environment and situations that will affect performance.

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Biosecurity measures includes but not limited to: | * Foot baths * Tyre baths * Isolation pens/paddocks * Fencing * Disinfection/fumigation * Parasite and pest control * Proper disposal of dead animals |
| 1. Hazard type(s) include but not limited to: | Chemical   * Pesticides * Veterinary drugs * Herbicides * Fungicides * Paint * Preservatives * Detergents * Disinfectants * Mycotoxins   Biological   * Bacteria * Viruses * Fungi * Protozoa   Physical   * Broken metal * Broken glass * Wires * Sticks * Insects |
| 1. Tools and equipment include but not limited to | Tools and equipment required for:   * Deworming * Spraying and dipping * Vaccination * Hoof trimming * Disbudding / dehorning * Grooming * Weighing * Land clearing, cleaning and disinfection |
| 1. Materials and supplies include but not limited to | Supplies and materials required for:   * Dewormers * Acaricides * Vaccines * Cleaning and disinfection |
| 1. Dairy animals include but not limited to | Livestock kept mainly for milk production:   * Cattle * Goats * Camels |
| 1. Environment protection regulations includes but not limited to: | * Public Health Act * EMCA 1999 * OSH Act 2007 |
| 1. Public health regulations include but not limited to | Guidelines designed and enforced by:   * National Environmental Management Authority * Kenya Veterinary Board * Ministry of Health |
| 1. Groom includes but not limited to | * Brushing * Washing * Clipping coat hair |

**REQUIRED SKILLS AND KNOWLEDGE**

This section describes the skills and knowledge required for this unit of competency.

**Required skills**

The individual needs to demonstrate the following skills:

* Animal handling
* Farm equipment operation skills
* Food safety risk assessment and communication
* Handling animal feeds and supplements
* Code of hygienic practices for milk and milk products
* Animal grooming
* Animal health applied skills
* Farm records keeping

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Types of diseases and parasites
* Mode of disease and parasite spread
* Animal Immunology
* Animal gross anatomy and basic physiology
* Animal welfare
* Methods of hoof trimming and dehorning
* Animal health care
* Grooming procedures
* Record keeping
* Animal Disease Act (Cap 364)
* Code of hygienic practices for milk and milk products

**EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge and range.

|  |  |
| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Carried out food safety risk assessment to maintain dairy herd health   2. Implemented biosecurity measures   3. Controlled internal and external parasites   4. Implemented vaccination schedule   5. Used correct procedure to trim hooves and dehorn dairy animals   6. Observed occupational safety and health measures in the working environment   7. Observed laid down environmental protection measures at the work place   8. Documented and maintained dairy herd health and food safety records. |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / workplace   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Oral questioning   3. Written test   4. Portfolio of Evidence   5. Interview   6. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |