

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**ANIMAL PRODUCTION TECHNICIAN**

**LEVEL 5**

**OS ISCED CODE: 0811 354 A**

Copyright

All rights reserved. No part of these Occupational standards may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods without the prior written permission of the authorizing agent, except in the case of brief quotations embodied in critical reviews and certain other non-commercial uses permitted by copyright law.

**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 the achievement of Kenya’s development blueprint, Vision 2030 and the government agenda, bottom up economic transformation agenda (BeTA)

Reforms in the education sector are necessary for the achievement of Kenya Vision 2030 and meeting the provisions of the Constitution of Kenya 2010. These reforms resulted to the formulation of the Policy Framework for Reforming Education and Training (Sessional Paper No.14 of 2012). 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, certification be based on demonstration of competence and mode of delivery allows for multiple entry and exit in TVET programs.

The reforms also demand that industry informs occupational standard development to ensure the curriculum addresses its competence needs. This Occupational Standard will thus inform the development of the Competency-Based Education and Training (CBET) curriculum for Aquaculture practitioners.

The Standard will also be the basis for the assessment of an individual for competency certification.

It is my conviction that this Occupational Standard will play a great role in the development of a competent human resource for sustainable development.

**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 TVET Act CAP 210A and Sessional Paper No. 14 of 2012 on Reforming Education and Training in Kenya, emphasized the need to reform curriculum development, assessment and certification. This called for a shift to CBET to address the mismatch between skills acquired through training and skills needed by the industry as well as increase the global competitiveness of the Kenyan labor force am grateful to the Governing Council Members, TVETA, sector regulators, the industry experts, and subject experts who participated in the development of this standard.

**ACKNOWLEDGMENT**

This Occupational Standard was developed through the 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 input towards the development of this Occupational Standard.

I also thank all the individuals and organizations who participated in the validation of this Occupational Standard.

**TABLE OF CONTENTS**

[FOREWORD iii](#_Toc197038199)

[ACKNOWLEDGMENT v](#_Toc197038200)

[TABLE OF CONTENTS vi](#_Toc197038201)

[ACRONYMS vii](#_Toc197038202)

[SUMMARY OF UNITS OF COMPETENCY viii](#_Toc197038203)

[PRODUCE LIVESTOCK FEEDS 1](#_Toc197038204)

[MANAGE DAIRY CATTLE 7](#_Toc197038205)

[MANAGE BEEF ANIMALS 16](#_Toc197038206)

[CARRY OUT SHEEP PRODUCTION 24](#_Toc197038207)

[CARRY OUT GOAT PRODUCTION 31](#_Toc197038208)

[CARRY OUT PIG PRODUCTION 38](#_Toc197038209)

[CARRY OUT POULTRY PRODUCTION 51](#_Toc197038210)

# 

# ACRONYMS

|  |  |
| --- | --- |
| PPEs | Personal Protective Equipment |
| ISCED | International Standard Classification of Education |
| TVET | Technical and vocational education and training |

# 

**OVERVIEW**

Animal Production level 5 qualification consists competencies required by an individual to rear livestock. It entails producing livestock feeds, managing dairy cattle, managing beef animals, carrying out sheep production, carrying out goat production, carrying out pig production, carrying out poultry production, and managing farm structures.

# SUMMARY OF UNITS OF COMPETENCY

**Core Units of Competency**

|  |  |
| --- | --- |
| **Unit Code** | **Unit Title** |
| 0811 351 01 A | Produce Livestock Feeds |
| 0811 351 02 A | Manage Dairy Cattle |
| 0811 351 03 A | Manage Beef Animals |
| 0811 351 04 A | Carry Out Sheep Production |
| 0811 351 05 A | Carry Out Goat Production |
| 0811 351 06 A | Carry Out Pig Production |
| 0811 351 07 A | Carry Out Poultry Production |

## PRODUCE LIVESTOCK FEEDS

**UNIT CODE:** 0811 351 01 A

**UNIT DESCRIPTION**

This unit specifies competencies required to produce livestock feeds. It involves producing livestock forage, conserving livestock forage, and formulating livestock feed rations.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are asses-sable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the Range.*** |
| --- | --- |
| 1. Produce livestock forage | 1. ***Tools and equipment*** are assembled as per work requirements 2. ***Propagation materials*** are sourced as per ***Agro-Ecological Zone*** *(AEZ)* 3. Land is prepared as per planting material requirements 4. Propagation materials are prepared according to ***Good Agricultural Practices*** (GAP) 5. Propagation materials are established as per good agricultural practices 6. ***Forages*** are ***managed*** as per good agricultural practices 7. Forages are harvested as per maturity index and height |
| 1. Conserve livestock forage | 1. Quality of harvested forages is assessed based livestock production manual 2. Forages are conserved into silage or hay as per LPM 3. Conserved forage is stored based on established storage requirements and conditions 4. Forage production records are generated and disseminated as per the workplace requirements 5. Waste is managed according to environmental protection regulations |
| 1. Formulate livestock rations | 1. Feed formulation tools, equipment and materials are identified and assembled based on feed formulation manual and workplace requirements 2. ***Animal feeds ingredients*** are identified as per animal feeding standard 3. Animal feeds ingredient are sourced as per type of feed to be formulated and animal nutritional requirements 4. Ingredient proportions are weighed as per feed formulation formula 5. Livestock feed rations are formulated using ***feed formulation methods*** as per animal feeding standard 6. Formulated feeds are packaged and labeled as per feed manufacturing guidelines 7. Packaged feeds are stored as per livestock feed manufacturing guidelines 8. Waste is managed according to environmental protection regulations |

**RANGE OF VARIABLES**

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.

| **RANGE** | **VARIABLE** |
| --- | --- |
| 1. Tools and equipment may include but are not limited to: | * Equipment * Grass cutters * Generator * Water pump with hose * Tractors (optional) * Draft animals * Plow and harrow * Shovel * Hoe * Water sprinklers * Planter * Wheelborrow * Hole digger * Planting materials * Fertilizer (Organic and inorganic) * Pesticides * Root inoculants * Herbicides * Fencing materials |
| 1. Propagation materials may include but are not limited to: | * Seeds, Seedlings * Cuttings, Splits and * Tubers for propagation |
| 1. Good Agricultural Practices (GAP) includes but not limited | * Liming * Mulching |
| 1. Forages may include but not limited to; | * Pastures * Fodder crops |
| 1. Animal feeds ingredients may include but not limited to; | * Feed additives , Bran * Mineral premixes |
| 1. Feed formulation methods may include but not limited to; | * Person square * Trial and error * Computer method |

**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 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 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 implication | The following resources should be provided:   * 1. Tools, equipment and machineries   2. Materials and supplies |
| 1. Method of assessment | Competency in this unit may be assessed through:   * 1. Practical   2. project   3. Written tests   4. Oral questioning |
| 1. Context of assessment | 4.1 Competency elements must be assessed in a safe working environment  4.2 Assessment may be conducted in a workplace or simulated environment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## MANAGE DAIRY CATTLE

**UNIT CODE:** 0811 351 02 A

**UNIT DESCRIPTION**

This unit specifies competencies required to manage dairy cattle which involves construction dairy cattle structures, feeding of dairy cattle, breeding of dairy cattle, managing of dairy calf, production of clean milk, Performing dairy cattle routine management practices and marketing of dairy products

**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. Construct dairy cattle structures | 1. Tools, equipment and materials are assembled as per work requirements 2. Site of ***dairy cattle structures*** is selected based on LPM 3. Dairy cattle structures are designed according to Livestock Production Manual (LPM) 4. Dairy cattle structures are constructed based on livestock production manual 5. Dairy cattle structures are maintained as per workplace procedures 6. Maintenance records are kept as per workplace requirements 7. Waste is managed according to environmental protection regulations |
| 1. Feed dairy cattle | 1. Tools, equipment and materials are assembled as per work requirements 2. ***Dairy cattle feeds*** are identified as per the nutritional requirements 3. Dairy cattle are grouped based on their nutritional requirements 4. Dairy cattle feeding regime is determined based on LPM 5. Dairy cattle are fed based on their nutritional requirements in accordance with LPM 6. Feed intake is evaluated as per the LPM 7. Feed conversion efficiency is evaluated based on productivity 8. Dairy cattle feeding record is generated as per the workplace procedures 9. Waste is managed according to environmental protection regulations |
| 1. Breed dairy cattle | 1. Breeding management tools, equipment and materials are assembled in accordance with LPM 2. ***Dairy Cattle breeds*** are identified based on LPM 3. Dairy Cattle breeds are selected based on traits of economic importance and farmer requirements 4. Dairy cattle on heat are detected based on LPM 5. Flushing is carried out as per LPM 6. Service is performed based on the ***breeding method*** ***and technologies*** as per the LPM 7. Gestation is managed as per the LPM 8. In-calf dairy cows are cared for based on the LPM 9. Steaming-up is carried out based on LPM 10. Parturition Breeding records are prepared as per work procedures |
| 1. Manage dairy calf | 1. Calf management tools, equipment and materials are assembled as per the LPM 2. Calf pens are prepared as per LPM 3. Calf is handled at birth as per LPM 4. Calf is fed colostrum according to the LPM 5. Orphaned calves are fostered according to LPM 6. Artificial colostrum is prepared as per LPM 7. Calf is identified using suitable method in accordance with LPM, animal welfare regulations and work place policy 8. Calf is housed based on production system, prevailing climatic conditions and age within LPM standards 9. Calf is introduced to roughage feeding in accordance with LPM 10. Calf is disbudded and extra mammary teats removed in accordance with animal welfare regulations and work place policy 11. Calf is weighed in accordance with LPM instructions and work place policy 12. Calf growth rate is monitored as per LPM 13. Calf is weaned in accordance with the LPM 14. Waste is managed and disposed based on environmental protection regulations |
| 1. Produce clean milk | 1. ***Milking materials and equipment*** are assembled based on the milking technique selected 2. Milking cows are assembled in accordance with the LPM 3. Milking cow is restrained in accordance with the LPM 4. Udder is cleaned and pre-dipped according to LPM 5. ***Mastitis test*** is carried out based LPM 6. Milk let down is stimulated based on selected ***milking technique*** 7. Milking is carried out based on Essentials of Clean Milk Production Standard. 8. Udder quarters are disinfected as per the LPM 9. Milked cow is released as per workplace procedures 10. Milk is sieved and weighed according to the workplace procedures 11. Milk is stored and cooled in accordance with LPM 12. Milk production record is maintained based on the workplace procedures 13. Milking equipment are cleaned as per workplace procedures 14. Milking parlour is cleaned as per workplace procedures 15. Re-usable materials are stored as per manufactures instruction and workplace policy 16. Waste is managed and disposed with due regard to environment protection regulations |
| 1. Perform dairy cattle routine management practices | 1. Dairy ***Cattle identification method*** is selected based on GAPs 2. Cattle is dehorned or disbudded based on GAPs 3. Cattle overgrown hooves are trimmed based on GAPs 4. Dairy cattle are culled based on workplace policy 5. Internal and external parasites are controlled based on LPM and GAPs 6. Vaccination is performed as per workplace policy, manufacturer’s instructions and LPM 7. Cattle isolation and quarantine is carried out to control notifiable diseases based on GAPs 8. Dairy cattle are provided with clean water ad-libitum as per LPM |
| 1. Market dairy cattle products | 1. Market survey is conducted based on Standard Survey guidelines 2. ***Dairy Cattle products*** are sold based on market demands 3. Dairy Cattle is transported to the market based on Animal Welfare Act, 4. Marketing records are maintained based on the organization’s record management guidelines |

**RANGE OF VARIABLES**

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.

| **RANGE** | **VARIABLE** |
| --- | --- |
| 1. Dairy cattle structures may include but not limited to: | * + Crushes   + Milking parlour   + Barn   + Feeding facility   + Cattle shed   + Cattle dips   + Feed storage facility   + Farm office |
| 1. Dairy cattle feeds may include but not limited to: | * + Carbohydrates   + Proteins   + Vitamins   + Minerals   + Fats/ lipids   + Water |
| 1. Dairy Cattle breeds method may include but not limited to: | * + Friesian   + Ayrshire   + Sahiwal   + Jersey   + Brown Swiss |
| 1. Breeding method and technologies may include but not limited to: | * + Artificial insemination   + Natural method   + Cross breeding   + Pure breeding   + Inbreeding   + Embryo transfer   + Surrogate   + Signs of heat   + Estrus synchronization |
| 1. Milking materials and equipment may include but not limited to: | * Animal Restraint * Cleaning * Cups * Herd Test Buckets * Thermometer * Separator |
| 1. Mastitis test may include but not limited to: | * + CMT   + Strip cup |
| 1. Milking technique may include but not limited to: | * + Hand milking   + Milking machine |
| 1. Cattle identification method may include but not limited to: | * + Ear tagging   + Ear notching   + Branding   + Neck chains   + Straps with numbers   + Ear tattooing |
| 1. Dairy Cattle products may include but not limited to: | * + Milk   + Hides   + Hooves   + Cream.   + Butter.   + Fermented.   + Yogurt.   + Cheese |

**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
* Analytical
* Evaluation
* Management
* Problem solving
* Time management
* Data collection
* Numeracy
* Observation
* Negotiation
* Digital literacy
* Equipment calibration

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Principles of animal production
* Cattle selection and breeding
* Cattle nutrition
* Parasite and disease management in cattle
* Cattle value added products
* Cattle routine management practices
* Cattle structures
* Cattle production records

**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 | 1. Assessment requires evidence that the candidate: 2. Selected site of dairy cattle structures based on LPM 3. Kept maintenance records as per workplace requirements 4. Grouped dairy cattle based on their nutritional requirements 5. Determined dairy cattle feeding regime based on LPM 6. Fed dairy cattle based on their nutritional requirements in accordance with LPM 7. Selected dairy cattle breeds based on traits of economic importance and farmer requirements 8. Cleaned udder and pre-dipped according to LPM 9. Carried mastitis test out based LPM 10. Stimulated milk let down based on selected milking technique 11. Carried out milking based on Essentials of Clean Milk Production Standard. 12. Disinfected udder quarters as per the LPM 13. Carried out cattle isolation and quarantine is to control notifiable diseases based on GAPs 14. Sold dairy Cattle products are based on market demands 15. Managed waste is with due regard to environment protection regulations |
| 1. Resource   implication | 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   3. Materials relevant to the proposed assessment activity or tasks |
| 1. Method of   assessment | Competency in this unit may be assessed through:   * 1. Written tests   2. Questionnaires   3. Oral questioning   4. Projects   5. Observation |
| 1. Context of   assessment | 4.1 Competency elements must be assessed in a safe working environment  4.2 Assessment may be conducted in a workplace or simulated environment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## MANAGE BEEF ANIMALS

**UNIT CODE:** 0811 351 03 A

**UNIT DESCRIPTION**

This unit specifies competencies required to manage beef animals. It involves constructing beef cattle structures, carrying out beef cattle feeding, carrying out beef cattle breeding carrying out calf management, performing beef cattle routine management practices managing fattening stock slaughtering beef cattle and marketing beef products

**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. Construct beef cattle structures | 1. Tools, equipment and materials are assembled as per work requirements 2. Site of ***beef cattle structures*** is selected based on LPM 3. Beef cattle structures are designed according to Livestock Production Manual (LPM) 4. Beef cattle structures are constructed based on livestock production manual 5. Beef cattle structures are maintained as per workplace procedures 6. Beef cattle structures construction and maintenance records are kept as per workplace requirements 7. Waste is managed according to environmental protection regulations |
| 1. Carry out beef cattle feeding | 1. Tools, equipment and materials are assembled as per work requirements 2. ***Beef cattle feeds*** are identified as per the nutritional requirements 3. Beef cattle are grouped based on their nutritional requirements 4. Beef cattle feeding regime is determined based on LPM 5. Beef cattle are fed based on their nutritional requirements in accordance with LPM 6. Feed supplements are provided according to beef cattle dietary requirements 7. Feed intake is evaluated as per the LPM 8. Feed conversion efficiency is evaluated based on productivity 9. Beef cattle feeding record is generated as per the workplace procedures 10. Waste is managed according to environmental protection regulations |
| 1. Carry out beef cattle breeding | 1. Breeding management tools, equipment and materials are assembled in accordance with LPM 2. ***Beef Cattle breeds*** are identified based on LPM 3. Beef Cattle breeds are selected based on traits of economic importance and farmer requirements 4. Beef cows on heat are detected based on LPM 5. Flushing is carried out as per LPM 6. Service is performed based on the ***breeding method*** ***and technologies*** as per the LPM 7. In-calf beef cows are provided care based on the LPM 8. Steaming-up is carried out based on LPM 9. Parturition is managed as per the LPM 10. Breeding records are prepared as per work procedures |
| 1. Carry out calf management | 1. Calf management tools, equipment and materials are assembled as per the LPM 2. Calf pens are prepared as per LPM 3. Calf is handled at birth according to instructions in LPM 4. Calf is fed colostrum according to LPM 5. Calf is identified using suitable method in accordance with LPM, animal welfare regulations and work place policy 6. Calf is housed based on production system, prevailing climatic conditions and age within LPM standards 7. Calf is introduced to roughage feeding in accordance with LPM 8. Calf is disbudded in accordance with animal welfare regulations and work place policy 9. Calf is weighed in accordance with LPM instructions and work place policy 10. Calf growth rate is monitored in accordance with principles of animal nutrition and breeding 11. Calf is weaned in accordance with the LPM 12. Waste is managed and disposed based on environmental protection regulations |
| 1. Perform beef cattle routine management practices | 1. Beef ***Cattle identification method*** is selected based on GAPs 2. Beef Cattle are ***dehorned*** or disbudded based on GAPs 3. Castration is performed as per the LPM and market requirements 4. Overgrown hooves are trimmed based on GAPs 5. Culling is performed based on workplace policy 6. Internal and external parasites are controlled based on LPM and GAPs 7. Vaccination is performed as per workplace policy, manufacturer’s instructions and LPM 8. Cattle isolation and quarantine is carried out to control notifiable diseases based on GAPs 9. Beef cattle are provided with clean water ad-libitum as per LPM |
| 1. Manage fattening stock | 1. Tools, equipment and materials are assembled as per the LPM 2. ***Feedlot facilities*** are prepared based on LPM 3. Fattening stock are selected for finishing as per the market requirements 4. ***Management practices*** ***for fattening stock*** are carried out based on LPM 5. Fattening is monitored as per growth curve of beef cattle 6. Fattened beef cattle are marketed based on market specifications 7. Records are maintained as per the workplace procedures 8. Waste is managed based on environmental protection regulations |
| 1. Slaughter beef cattle | 1. Tools, equipment and materials for slaughter are assembled based on the Kenya Meat Control Act 2. Slaughter house/slab is prepared in accordance to the Kenya Meat Control Act 3. Pre-slaughter handling of Beef cattle is carried out as per the Animal Welfare Act 4. Humane slaughter of beef cattle is performed as per Animal Welfare Act 5. Dressing of carcass is carried out in accordance with Kenya Meat Control Act 6. Cleaning of the offal is done as per the workplace procedures 7. Dressed meat is preserved as per the Kenya Meat Act 8. Dressed meat is transported as per the Kenya Meat Control Act 9. By-products are handled according to the Kenya Meat Control Act 10. ***Condemned materials*** and wastes are disposed as per the Kenya Meat Control Act 11. Cleaning of slaughterhouse and equipment is done as per Kenya Meat Control Act and environmental management regulations 12. Slaughter structures are maintained as per Kenya Meat Control Act 13. Records are generated based on the workplace record management guidelines |
| 1. Market Beef products | 1. Market survey is conducted based on Standard Survey guidelines 2. Cattle is transported to the market based on Animal Welfare Act 3. Beef products are sold based on market requirements 4. Marketing records are maintained based on workplace guidelines |

**RANGE OF VARIABLES**

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.

| **RANGE** | **VARIABLE** |
| --- | --- |
| 1. Beef cattle structures may include but not limited to; | * Crushes, Feeding facility * Cattle shed, Cattle dips * Feed storage facility * Farm office |
| 1. Beef cattle feeds may include but not limited to; | * Pasture forage * Hay, Silage * Straw * Grain by-products |
| 1. Beef Cattle breeds may include but not limited to; | * + Angus   + Hereford   + Charolais   + Simmental |
| 1. Breeding method and technologies may include but not limited to; | * + Artificial insemination   + Natural method   + Cross breeding   + In breeding   + Pure breeding   + Embryo transfer   + Surrogate   + Signs of heat   + Estrus synchronization |
| 1. Beef cattle identification method may include but not limited to; | * Ear tagging * Ear notching * Branding * Neck chains * Straps with numbers   + Ear tattooing |
| 1. Dehorning methods may include but not limited to; | * Hot iron * Use of chemicals * Use of Saws * Electric method * Disbudding rod * Dehorning wire |
| 1. Feedlot facilities may include but not limited to; | * + Feedlot pens   + Feed storage   + Feed processing mill   + Feed mixing/batching   + Feed bunks |
| 1. Management practices for fattening stock may include but not limited to; | * + Vaccination   + Hoof care   + Deworming   + Disease and parasite control |
| 1. Condemned materials may include but not limited to; | * + Any parts of the animal that are deemed unfit for human consumption |

**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
* Evaluation
* Problem solving
* Time management
* Data collection
* Numeracy
* Observation
* Negotiation
* Digital literacy

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Beef cattle selection and breeding
* Beef cattle nutrition
* Parasite and disease management in beef
* Beef cattle value added products
* Beef cattle routine management practices
* Beef cattle structures
* Production records

**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. Selected site of beef cattle structures based on LPM 2. Constructed beef cattle structures based on livestock production manual 3. Kept records as per workplace requirements 4. Provided Basal rations at various physiological stage based on feeding plan. 5. Evaluated feed intake as per the LPM 6. Evaluated feed conversion efficiency based on productivity 7. Identified Beef cattle breeds based on LPM 8. Performed breeding method and technologies service based on the s as per the LPM 9. Provided pregnant cows care based on the LPM 10. Managed calving as per the LPM 11. Fostered orphaned calves according to LPM 12. Selected Beef cattle identification method based on GAPs 13. Controlled internal and external parasites based on LPM and GAPs 14. Managed waste according to environmental protection regulations |
| 1. Resource implication | 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   3. Materials relevant to the proposed assessment activity or tasks |
| 1. Method of assessment | Competency in this unit may be assessed through:   * 1. Written tests   2. Questionnaires   3. Oral questioning   4. Projects   5. Observation |
| 1. Context of assessment | 1. Competency elements must be assessed in a safe working environment 2. Assessment may be conducted in a workplace or simulated environment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## CARRY OUT SHEEP PRODUCTION

**UNIT CODE:** 0811 351 04 A

**UNIT DESCRIPTION**

This unit specifies competencies required to carry out sheep production. It involves constructing sheep structures, carrying out sheep feeding, carrying out sheep breeding, carrying out lamb management, performing sheep routine management practices and marketing sheep products.

**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. Construct sheep structures | 1. Tools, equipment and materials are assembled as per work requirements 2. Site of sheep structures is selected based on LPM 3. Sheep structures are designed according to Livestock Production Manual (LPM) 4. Sheep structures are constructed based on livestock production manual 5. Sheep structures are maintained as per workplace procedures 6. Sheep structures construction and maintenance records are kept as per workplace requirements 7. Waste is managed according to environmental protection regulations |
| 1. Carry out Sheep feeding | 1. Tools, equipment and materials are assembled as per work requirements 2. Sheep feeds are identified as per the nutritional requirements 3. Basal rations at various physiological stage are provided based on feeding plan. 4. Feed supplements are offered according to animal dietary requirements 5. Grazing management is identified and practiced 6. Grazing capacity of the pasture is determined based on pasture land condition 7. Feed intake is evaluated as per the LPM 8. Feed conversion efficiency is evaluated based on productivity 9. Sheep feeding record is generated as per the workplace procedures 10. Waste is managed according to environmental protection regulations |
| 1. Carry out sheep breeding | 1. Breeding management tools, equipment and materials are assembled in accordance with LPM 2. ***Sheep breeds*** are identified based on LPM 3. Sheep breeds are selected based on traits of economic importance and farmer requirements 4. Ewes on heat are detected based on LPM 5. Flushing is carried out as per LPM 6. Raddling is carried out based on GAPs 7. Crutching and ringing are carried out based on GAPs 8. Service is performed based on the ***breeding method*** ***and technologies*** as per the LPM 9. Pregnant ewes are provided care based on the LPM 10. Steaming-up is carried out based on LPM 11. Lambing is managed as per the LPM 12. Breeding records are prepared as per work procedures |
| 1. Carry out lamb management | 1. 4.1 Lamb is handled at birth according to instructions in the LPM 2. Lamb is fed colostrum according to the LPM 3. Orphaned lambs are fostered according to LPM 4. Lamb is identified using suitable method in accordance with LPM, animal welfare regulations and work place policy 5. Docking is performed according to animal welfare regulations and work place policy 6. Lamb is weighed in accordance with LPM instructions and work place policy 7. Lamb growth rate is monitored as per LPM 8. Waste is managed and disposed based on environmental protection regulations |
| 1. Perform sheep routine management practices | 1. ***Sheep identification method*** is selected based on GAPs 2. ***Sheep castration*** is performed based on GAPs 3. Sheep overgrown hooves are trimmed based on GAPs 4. Wigging is performed based on GAPs 5. Shearing is performed based on GAPs 6. Culling is performed based on workplace policy 7. Internal and external parasites are controlled based on LPM and GAPs 8. Vaccination is performed as per workplace policy, manufacturer’s instructions and LPM 9. Isolation/ quarantine is carried out to control notifiable diseases based on GAPs 10. Sheep are provided with clean water ad-libitum as per LPM 11. Records are prepared as per work procedures |
| 1. Market sheep products | 1. Market survey is conducted based on Standard Survey guidelines 2. Sheep is classified as per products 3. Sheep is transported to the market based on Animal Welfare Act 4. Sheep products are sold based on market requirements 5. Marketing records are maintained based on workplace guidelines |

**RANGE OF VARIABLES**

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.

| **RANGE** | **VARIABLE** |
| --- | --- |
| 1. Sheep breeds may include but not limited to: | * + Hampshire Sheep   + Dorset Sheep   + Merino Sheep   + Corriedale Sheep   + Maasai sheep   + Doper   + Black head Persian |
| 1. Breeding method and technologies may include but not limited to: | * + Artificial insemination   + Natural method   + Embryo transfer   + Surrogate   + Signs of heat   + Estrus synchronization |
| 1. Sheep identification method may include but not limited to: | * + Ear Tagging   + Ear Notching   + Neck Chains or Straps |
| 1. Sheep castrationmay include but not limited to: | * + **Closed castration**   + **Surgical Castration** |

**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
* Analytical
* Evaluation
* Management
* Problem solving
* Time management
* Data collection
* Numeracy
* Observation
* Negotiation
* Digital literacy
* Equipment calibration

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Principles of animal production
* Sheep selection and breeding
* Sheep nutrition
* Parasite and disease management in sheep
* Sheep products
* Wool shearing
* Sheep docking
* Sheep production records

**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 | 1. Assessment requires evidence that the candidate: 2. Selected site of sheep structures based on LPM 3. Constructed sheep structures based on livestock production manual 4. Kept records as per workplace requirements 5. Managed waste according to environmental protection regulations 6. Provided Basal rations at various physiological stage based on feeding plan. 7. Evaluated feed intake as per the LPM 8. Evaluated feed conversion efficiency based on productivity 9. Identified Sheep breeds based on LPM 10. Performed breeding method and technologies service based on the s as per the LPM 11. Provided pregnant ewes care based on the LPM 12. Managed lambing as per the LPM 13. Fostered orphaned lambs according to LPM 14. Selected Sheep identification method based on GAPs 15. Controlled internal and external parasites based on LPM and GAPs |
| 1. Resource implication | The following resources should be provided:   * 1. Tools, equipment and machineries   2. Materials and supplies |
| 1. Method of assessment | Competency in this unit may be assessed through:   * 1. Written tests   2. Questionnaires   3. Oral questioning   4. Projects   5. Observation |
| 1. Context of assessment | 1. Competency elements must be assessed in a safe working environment 2. Assessment may be conducted in a workplace or simulated environment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## CARRY OUT GOAT PRODUCTION

**UNIT CODE:** 0811 351 05 A

**UNIT DESCRIPTION**

This unit specifies competencies required to carry out goat production. It involves constructing goat structures, carrying out goat breeding, carrying out goat feeding, performing goat routine management practices, carrying out kid management and marketing goat products.

**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. Construct goat structures | 1. Tools, equipment and materials are assembled as per work requirements 2. Site of goat structures is selected based on LPM 3. Goat structures are designed according to Livestock Production Manual (LPM) 4. Goat structures are constructed based on livestock production manual 5. Goat structures are maintained as per workplace procedures 6. Goat structures construction and maintenance records are kept as per workplace requirements 7. Waste is managed according to environmental protection regulations |
| 1. Carry out goat feeding | 1. Tools, equipment and materials are assembled as per work requirements 2. ***Goat feeds*** are identified as per the nutritional requirements 3. Basal rations at various physiological stage are provided based on feeding plan. 4. ***Feed supplements*** are offered according to animal dietary requirements 5. ***Grazing management*** isidentified and practiced 6. Grazing capacity of the pasture is determined based on pasture land condition 7. Feed intake is evaluated as per the LPM 8. Feed conversion efficiency is evaluated based on productivity 9. Goat feeding record is generated as per the workplace procedures 10. Waste is managed according to environmental protection regulations |
| 1. Carry out goat breeding | 1. Breeding management tools, equipment and materials are assembled in accordance with LPM 2. ***Goat breeds*** are identified based on LPM 3. Goat breeds are selected based on traits of economic importance and farmer requirements 4. Does on heat are detected based on LPM 5. Flushing is carried out as per LPM 6. Service is performed based on the ***breeding method*** ***and technologies*** as per the LPM 7. Pregnant does are provided care based on the LPM 8. Steaming-up is carried out based on LPM 9. Kidding is managed as per the LPM 10. Breeding records are prepared as per work procedures |
| 1. Perform goat routine management practices | 1. ***Goat identification method*** is selected based on GAPs 2. ***Goat castration*** is performed based on GAPs 3. Goat overgrown hooves are trimmed based on GAPs 4. Shearing is performed based on GAPs 5. Culling is performed based on workplace policy 6. Internal and external parasites are controlled based on LPM and GAPs 7. Vaccination is performed as per workplace policy, manufacturer’s instructions and LPM 8. Isolation and quarantine is carried out to control notifiable diseases based on GAPs 9. Goats are provided with clean water ad-libitum as per LPM 10. Records are prepared as per work procedures |
| 1. Carry out kid management | 1. Kid is handled at birth according to instructions in the LPM 2. Kid is fed colostrum according to the LPM 3. Orphaned kids are fostered according to LPM 4. Kid is identified using suitable method in accordance with LPM, animal welfare regulations and work place policy 5. Kid is weighed in accordance with LPM instructions and work place policy 6. Kid growth rate is monitored as per LPM 7. Waste is managed and disposed based on environmental protection regulations |
| 1. Market goat products | 1. Market survey is conducted based on Standard Survey guidelines 2. Goats are classified as per products 3. Goats are transported to the market based on Animal Welfare Act 4. Goat products are sold based on market requirements 5. Marketing records are maintained based on workplace guidelines |

**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.

| **RANGE** | **VARIABLE** |
| --- | --- |
| 1. Construction tools and equipment may include but are not limited to: | * + Hammer   + Hand drill   + Nails   + Wheelbarrow   + Crowbar   + Saw   + Scissors   + Spade   + Measuring tape   + Panga   + String/line |
| 1. Goat feeds may include but are not limited to: | * + Grass   + Shrubs   + Commercially formulated feeds |
| 1. Feed supplements may include but are not limited to: | * + Vitamins   + Minerals   + Hormones   + Medicants |
| 1. Goat breed may include but are not limited to: | * + Angora, Alpine   + Toggenburg   + Saanen, Jamnapa   + ri   + Boar, Anglo-Nubian   + Somali/ Galla |
| 1. Breeding methods may include but are not limited to: | * + Natural mating   + Artificial insemination |
| 1. Identification methods may include but are not limited to: | * + Tattooing, Ear-tagging   + Ear notching, Microchips   + Naming |
| 1. Castration methods may include but are not limited to: | * + Rubber ringing   + Open castration |
| 1. Classification of goats may include but are not limited to: | * + Hair goats   + Meat goats   + Dairy goats |

**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 skills
* Problem solving
* Organizational skills
* Time management
* Critical thinking
* Record keeping
* Routine management

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Goat handling
* Procurement procedures
* Reporting
* Rearing goats
* Feed handling
* Proper disposal of waste
* Types of inputs
* Types of wastes
* Sources of farm wastes
* Biosecurity measures
* Marketing goat 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. Constructed goat structures as per the LPM   2. Handled the goats as per the LPM   3. Fed the goats as per the LPM   4. Bred the goats and reared the kids as per the LPM   5. Managed waste based on the environmental protection regulations   6. Kept records according to the work place policy |
| 1. Resource   implication | The following resources should be provided:   * 1. Tools, equipment and machineries   2. Materials and supplies |
| 1. Method of   assessment | Competency in this unit may be assessed through:   * 1. Projects   2. Observation   3. Written tests   4. Questionnaires   5. Oral questioning |
| 1. Context of   assessment | 1. Competency elements must be assessed in a safe working environment 2. Assessment may be conducted in a workplace or simulated environment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |

## CARRY OUT PIG PRODUCTION

**UNIT CODE:** 0811 351 06 A

**UNIT DESCRIPTION**

This unit describes competencies required to carry out pig production. It involves feeding pigs, carrying out breeding, carrying out piglet rearing, performing routine management practices and performing pig slaughter.

**ELEMENTS AND PERFORMANCE CRITERIA**

| **ELEMENT**  These describe the key outcomes which make up workplace functions | **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. Construct pig structures | * 1. **Tools, equipment and materials** are assembled as per work requirements   2. Site for pig structures is selected based on LPM   3. Pig structures are designed according to Livestock Production Manual (LPM)   4. Pig structures are constructed based on livestock production manual   5. ***Piggery equipment*** are installed as per LPM   6. Pig structures are maintained as per workplace procedures   7. Pig structures construction and maintenance records are kept as per workplace requirements   8. Waste is managed according to environmental protection regulations |
| 1. Carry out pig feeding | 1. Tools, equipment and materials are assembled as per work requirements 2. Pig feeds are provided to pigs as per age groups. 3. Basal rations at various physiological stage are provided based on feeding plan 4. ***Feed supplements*** are offered according to animal dietary requirements 5. Feed intake is evaluated as per the LPM 6. Feed conversion efficiency is evaluated based on productivity 7. Pig feeds records are kept as per the workplace procedures 8. Waste is managed according to environmental protection regulations |
| 1. Carry out pig breeding | 1. **Breeding management tools,** equipment and materials are assembled in accordance with LPM 2. ***Pig breeds*** are identified based on LPM 3. Pig breeds are selected based on traits of economic importance and farmer requirements 4. Pigs on heat are detected based on LPM 5. Flushing is carried out as per LPM 6. Service is performed based on the ***breeding method*** ***and technologies*** as per the LPM 7. Pregnant pigs are provided care based on the LPM 8. Steaming-up is carried out based on LPM 9. Farrowing is managed as per the LPM 10. Breeding records are prepared as per work procedures |
| 1. Carry out piglet rearing | 1. Tools, equipment and materials are assembled as per work requirements 2. ***Nutritional Management*** is applied on suckling sow and piglets according to their developmental stage and LPM 3. ***Environmental conditions*** in the piglet pens is maintained in accordance to LPM 4. Health monitoring and management is performed based on the LPM 5. Piglets are handled in accordance to the LPM 6. Artificial colostrum is prepared as per pig husbandry manual 7. Piglets are weighed as per LPM 8. Vaccination is performed as per LPM 9. **Iron supplementation** is carried out as per the workplace procedures and the LPM 10. Teeth clipping is carried out as per the LPM 11. Castration is performed as the Standard Operating Procedures (SOPs) and Livestock welfare Act 12. Docking is performed as per Livestock welfare Act 13. ***Weaning Management*** is conducted in accordance to the LPM 14. Internal and external parasites are controlled as per the LPM 15. Records are maintained in accordance to the workplace 16. Waste is managed and disposed based on environmental protection regulations |
| 1. Perform pig routine management practices | 1. ***Pig identification method*** is selected based on GAPs 2. Grooming is performed as per workplace requirements 3. Hygiene and sanitation are performed as per pig husbandry manual (LPM) 4. Culling is performed based on workplace policy 5. Internal and external parasites are controlled based on LPM and GAPs 6. Vaccination is performed as per workplace policy, manufacturer’s instructions and LPM 7. Isolation and quarantine are carried out to control notifiable diseases based on GAPs 8. Pigs are provided with clean water ad-libitum as per LPM 9. Records are prepared as per work procedures 10. ***Pig farm bio-security practices*** are carried out based on good animal husbandry management guidelines, animal welfare practices, workplace instructions and legal requirement as per standard operating procedures. |
| 1. Perform pig slaughter | 1. Tools, equipment and materials for slaughter are assembled based on the Meat Control Act 2. Slaughter house/slab is prepared in accordance to the Kenya Meat Control Act 3. Pre-slaughter handling of pig is carried out as per the Animal Welfare Act 4. Humane slaughter of pig is performed as per Animal Welfare Act 5. Dressing of carcass is carried out in accordance with Meat Control Act 6. Cleaning of the offal is performed as per the workplace procedures 7. Dressed meat is preserved as per the Meat Control Act 8. Dressed meat is transported as per the Meat Control Act 9. ***Food safety and hygiene*** measures are implemented based on legal and statutory requirements (to be inserted where there is food. 10. ***By-products*** are handled according to the Meat Control Act 11. ***Condemned materials*** and wastes are disposed as per the Meat Control Act 12. Cleaning of slaughterhouse and equipment is performed as per Meat Control Act and environmental management regulations 13. Slaughter structures are maintained as per Meat Control Act 14. Records are kept based on the workplace record management guidelines |
| 1. Process pig products and by-products | 1. ***Data collection tools*** for conducting market survey are obtained based on data to be collected. 2. Market survey is conducted to establish preference for pig products and by products in accordance to workplace policy. 3. Survey report is prepared and recommendations given based on findings. 4. ***Pig products*** identified based on market survey report. 5. Necessary ***permits and certifications*** are obtained based legal and statutory requirements 6. Tools, equipment and materials for slaughter are assembled based on the Meat Control Act 7. Production schedules are developed based on plant capacity and market demand. 8. ***PPEs*** are identified and worn based on job requirements. 9. Carcasses for processing are identified and selected based on standard operating procedures 10. ***Pig products*** are processed based on recipe and processing chart, in accordance with standard operating procedures. 11. Mechanisms to assure food safety and hygiene are implemented based on legal and statutory requirements.     1. Pig products are packaged and stored based on type and product requirements     2. Report on pig products and by-products marketing is prepared and documented as per workplace policy.     3. Wastes are managed based on environmental regulations and workplace requirements |
| 1. Market pig products | 1. Market survey conducted for pig products and by-products as per workplace procedures 2. Marketing channels are identified based on market segmentation. 3. Marketing strategy is developed and implemented based on market needs. 4. Products’ competitive advantage is identified and promotion carried out based on market demand. 5. Product price is set based on cost of production, profit margins, organization objectives and competitor pricing. 6. Products outlets are selected based on identified channels. 7. **Contractual agreements** are undertaken, signed off and managed based on agreed terms. 8. Marketing strategy is reviewed based on performance. 9. Report on pig products marketing and sales activities is prepared and documented as per workplace policy. |

**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. Tools and equipment may include but are not limited to: | * Pangas * Slashers * Measuring tape * Hoes * Axe * Saw * Spade * Wheelbarrow |
| 1. *PPE* may include but are not limited to: | * Equipment and apparel used for safety of the worker e.g.   + Gum boots, Overall, Goggles,   + Helmet, Nose masks, Gloves |
| 1. Pig Breeds may include but are not limited to: | * Large white * Landrace * Duroc jersey * Berkshire |
| 1. Piggery equipment may include but are not limited to: | * Drinkers * Feeding trough * Surgical blades |
| 1. Pig identification method may include but are not limited to: | * Ear tags * Ear notching * Neck chains * Straps with numbers |
| 1. Legal requirements may include but are not limited to: | * Public health Act Cap 242 * EMCA 1999 * NEMA regulations * Meat control Act Cap 365 * OSH Act 2007 * Factories Act 514 |
| 1. Permits and certifications may include but are not limited to: | * Movement permits * No objection permits * Meat inspection permits * Food and hygiene certificate * Meat transportation permit |
| 1. Weaning Management may include but are not limited to: | * Weaning weight estimation * Creep feeding * Water access * Vaccination * Deworming * Housing * Feeding management * Health monitoring * Sow management * Record keeping |
| 1. Iron Supplementation includes but not limited; | * Iron injection * Sterilized soil * Iron sulphate paste |
| 1. Feed supplements may include but are not limited to: | * Wheat bran * Creep feed * Mineral licks * Feed additives |
| 1. Environmental conditions may include but are not limited to: | * Temperature * Cleanliness * Humidity * Light |
| 1. Health monitoring and management may include but are not limited to: | * Vaccination * Temperature checks |
| 1. Pig farm bio-security practicesmay include but are not limited to: | * Foot bath * Quarantine * Pen disinfection * Equipment sterilization * Fencing |
| 1. Breeding method and technologies   may include but are not limited to: | * A.1 * Synchronization * Cross breeding * Pure breeding * Inbreeding |
| 1. Breeding management tools may include but are not limited to: | * Heat detection devices * Insemination guns |
| 1. Nutritional Management may include but are not limited to: | * Flushing * Steaming up * Fattening |
| 1. Food safety and hygiene may include but are not limited to: | * HACCP * Sanitation |
| 1. Pig products may include but are not limited to: | * Sausages * Bacon * Lard * Cuts * Brawn * Smokies * Burgers |
| 1. Pig by-products may include but are not limited to: | * Blood meal * Bone meal * Biogas * Manure * Brushes * Buttons * Leather |
| 1. Condemned materials may include but are not limited to: | * Parasite infested organs * Dead foetus * Hydrated infested liver * Whole carcass |
| 1. Data collection methods may include but are not limited to: | * Focus group discussions * Media * KNBS * Observation * Interviews * Forecasting |
| 1. Contractual agreements may include but are not limited to: | * Verbal * Written |
| 1. Animal welfare regulations may include but are not limited to: | * KVB * KSPCA * OIE |

**REQUIRED KNOWLEDGE AND SKILLS**

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

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Pig handling
* Littering
* Rearing piglets, growers and finishers
* Rearing gilt, sow and boar for breeding
* Implementation of medication program
* Proper disposal of hazardous wastes
* Feeding habit of pig
* Digestive system of pigs
* Building materials, tools and equipment
* Consideration in siting a pig unit
* Development and management contract document
* Housing care, repair and maintenance
* Monitoring work progress
* Pig housing types and designs
* Report writing and record keeping
* Requisition of building materials
* Safety precautions
* Terms of reference development
* Types of pig production systems

**Required skills**

The individual needs to demonstrate the following skills:

* Analytical
* Communication
* Critical thinking
* Decision making
* Equipment operation
* Feed handling
* Problem solving
* Record keeping
* Routine management skills
* Report Writing

**EVIDENCE GUIDE**

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

|  |  |
| --- | --- |
| 1. Critical aspects of competency | Assessment requires evidence that the candidate:   1. Designed pig structure 2. Constructed pig production structures based on available resources 3. Prepared pig breeding stock 4. Mated pigs 5. Performed pig husbandry practices 6. Selected and used clearing tools correctly. 7. Recorded and stored construction materials appropriately. 8. Maintained a clear pig unit repair and maintenance records. 9. Slaughtered pigs based on Kenya Meat Control Act. 10. Marketed pigs based on market demands. 11. Prepared pig production records based on organization’s record management guidelines |
| 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   3. A busy pig farm which is in the process of upscaling production or   4. A farm starting/diversifying into pig production. |
| 1. Methods of assessment | Competency in this unit may be assessed through:   1. Third-party reports 2. Portfolio of Evidence 3. Interview 4. Written tests 5. Observation 6. Oral questioning |
| 1. Context of assessment | Competency may be assessed in a:   1. Off-the-job 2. On-the-job 3. During industrial attachment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector and workplace job role is recommended. |

## CARRY OUT POULTRY PRODUCTION

**UNIT CODE:**0811 351 07 A

**UNIT DESCRIPTION**

This unit specifies competencies required to carry out poultry production. It involves constructing poultry structures, carrying out chick brooding, managing layer poultry, managing meat poultry, managing poultry slaughter, managing poultry breeding and marketing poultry products.

**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. Construct poultry structures | 1. ***Tools, equipment and materials*** are assembled as per work requirements 2. Site of ***poultry structures*** is selected based on LPM 3. Poultry structures are designed according to Livestock Production Manual (LPM) 4. Poultry structures are constructed based on livestock production manual 5. Poultry structures are maintained as per workplace procedures 6. Poultry structures construction and maintenance records are kept as per workplace requirements 7. Waste is managed according to environmental protection regulations 8. Necessary ***poultry house equipment and material*** are identified according to production system 9. Poultry house equipment and materials are installed as per specifications in the ***poultry production manual (PPM)*** 10. Poultry structures construction and maintenance records are kept as per workplace requirements 11. Waste is managed according to environmental protection regulations |
| 1. Carry out chick brooding | 1. Tools, equipment and materials are assembled as per work requirements 2. Brooder is constructed as per poultry production guidelines 3. Brooder and brooder equipment are disinfected as per poultry production guidelines 4. Chick brooder equipment are set as per poultry production guidelines 5. Microclimate is monitored as per workplace requirements 6. Brooding chicks are fed as per the poultry production guidelines 7. Bio-safety structures/facilities are set as per workplace requirements 8. Brooding chicks are vaccinated as per the vaccination schedule 9. Predator control is executed as per workplace requirements 10. Chick brooding records are kept as the PPM 11. Waste is managed according to environmental protection regulations |
| 1. Manage Layer Poultry | 1. Tools, equipment and materials are assembled as per work requirements 2. Layers house sanitization procedures are performed as per manufacturer’s guidelines 3. Micro climate is monitored as per workplace requirements 4. Layer poultry are fed as per the poultry production guidelines 5. Layer poultry are vaccinated as per the vaccination schedule 6. Post-vaccination behaviour is monitored as per workplace requirements 7. Table poultry eggs are collected as per workplace requirements 8. Table poultry eggs are Sorted and graded as per poultry production manual 9. Table poultry eggs are cleaned as per poultry production manual 10. Table poultry eggs are packaged as per workplace requirements 11. Table poultry eggs are branded based on the KEBS specifications 12. Layer poultry records are kept as the PPM 13. Waste is managed according to environmental protection regulations |
| 1. Manage meat poultry | 1. Tools, equipment and materials are assembled as per work requirements 2. Meat poultry house sanitization procedures are performed as per manufacturer’s guidelines 3. Micro climate is monitored as per workplace requirements 4. Meat poultry are fed as per the poultry production guidelines 5. Meat poultry are vaccinated as per the vaccination schedule 6. Post-vaccination behavior is monitored as per workplace requirements 7. Meat poultry is caught as per workplace requirements 8. Meat poultry is weighed and sorted as per market requirement 9. Packaging and loading of meat poultry is carried out as per animal welfare guidelines 10. Meat poultry is recorded as per workplace requirements 11. Meat poultry is dispatched as per animal welfare guidelines 12. Meat poultry records are kept as the PPM 13. Waste is managed according to environmental protection regulations |
| 1. Manage Poultry Slaughter | 1. Tools, equipment and materials are assembled as per work requirements 2. Poultry for slaughter is selected as per the poultry farm regulations 3. Ante-mortem inspection is performed based on the veterinary regulations 4. Poultry is slaughtered as per poultry slaughtering procedure 5. Cleaned eviscerated poultry carcass is chilled as per poultry slaughtering procedure 6. Poultry carcass is chilled and graded as per workplace requirements 7. Portioned poultry meat is packaged as per the workplace procedures 8. Poultry slaughter records are kept as the PPM 9. Waste is managed according to environmental protection regulations |
| 1. Manage Breeding Poultry | 1. Tools, equipment and materials are assembled as per work requirements 2. Mating and breeding systems are designed in accordance with farm preferences and desired mating ratios 3. Breeding poultry are selectedin accordance with the poultry production manual (PPM) and poultry welfare regulations 4. Selected breeding poultry are mated as per designed mating and breeding systems 5. Breeding poultry are fed as per the poultry production guidelines 6. Breeding poultry are vaccinated as per the vaccination schedule 7. Post-vaccination behavior is monitored as per workplace requirements 8. Collected eggs in trays are fumigated in the farm fumigation chamber according to procedures described in the PPM 9. Poultry eggs are sorted and stored according to ***regulatory body standards*** 10. Selected eggs for hatching are transported to the hatchery according to PPM 11. Breeding poultry records are kept as the PPM 12. Waste is managed according to environmental protection regulations |
| 1. Market poultry products | 1. Market survey is conducted based on Standard Survey guidelines 2. ***Poultry products*** are sold based on market demands 3. Meat poultry is transported to the market based on Animal Welfare Act 4. Marketing records are maintained based on the organization’s record management guidelines |

**RANGE OF VARIABLES**

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.

| **RANGE** | **VARIABLE** |
| --- | --- |
| 1. Poultry structures may include but not limited to: | * Brooder * Grower house * Layer’s house * Broiler house * Feed store * Slated floors * Cages * Pallets |
| 1. Tools, equipment and materials may include but not limited to: | * Waterers * Feeders * Thermometer (maximum – minimum) * Heat sources * Litter material * Curtains * False ceilings * Hygrometer |
| 1. Poultry production manual (PPM) may include but not limited to: | * + National Poultry Development Programme Manual   + Breeder’s manuals by breeders like Cobb and Issa Brown |
| 1. Chick brooder equipment and Tools may include but not limited to: | * Brooder thermometer * Charcoal jiko * Infra-red bulb * Gas burner * Kerosene lamp * Chick feeder * Chick drinker   + Hygrometer |
| 1. Bio-safety structures/facilities includes but not limited to: | * Foot bath * Sanitizer * Fence |
| 1. Regulatory body standards include but is not limited to: | * Standards by bodies like: * Kenya Bureau of Standards (KEBS) * State Directorate of Veterinary Services (SDVS) |
| 1. Poultry products includes but is not limited to: | * Eggs * Poultry meat * Feathers * Manure * Offal |

**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 skills
* Problem solving
* Organizational skills
* Time management
* Listening skills
* Critical thinking
* Negotiation
* Data collection
* Digital literacy
* Analytical skills

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Anatomy and physiology of the poultry reproductive system
* Breeding systems
* Selection criteria for breeding poultry
* Poultry selection and breeding
* Animal nutrition
* Parasite and disease management in poultry
* Marketing poultry and eggs
* Egg handling
* Egg sorting
* Egg storage
* Feeding strategies, systems and regimes
* Mating systems
* Nutritional composition of feed materials
* Poultry feed intake
* Poultry housing requirements
* Poultry identification methods
* Poultry Immunology
* Poultry nutritional requirements
* Poultry spacing requirements
* Poultry welfare
* Reconstitution of vaccines
* Record keeping
* Refrigeration methods
* Restraining methods
* Selection and culling criteria
* Stocking density
* Traits of economic importance in poultry
* Types and breeds of poultry
* Types and functions of nutrients
* Types of drinkers and waterers
* Types of feed additives
* Types of poultry records
* Types of vaccines
* Vaccinology
* Water quality

**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. Constructed poultry structure as per the design and type of construction materials   2. Installed poultry house equipment and materials as per specifications in the ***poultry production manual (PPM)***Collected data as per statistical manual   3. Mated breeding poultry as per designed mating and breeding systems   4. Fed poultry as per the poultry production guidelines   5. Vaccinated poultry as per the vaccination schedule   6. Monitored microclimate as per workplace requirements   7. Stored eggs for incubation at a correct temperature in preparation for incubation in accordance with PPM guidelines   8. Carried out packaging and loading of meat producing poultry as per animal welfare guidelines   9. Slaughtered poultry as per poultry slaughtering procedure   10. Chilled and graded poultry carcass as workplace requirements   11. Packaged portioned poultry meat as per workplace procedures   12. Kept records as per the LPM   13. Managed wastes according to environmental protection regulations |
| 1. Resource implication | The following resources should be provided:   * 1. Tools, equipment and machineries   2. Materials and supplies |
| 1. Method of assessment | Competency in this unit may be assessed through:   * 1. Projects   2. Observation   3. Written tests   4. Questionnaires   5. Oral questioning |
| 1. Context of assessment | 1. Competency elements must be assessed in a safe working environment 2. 4.2 Assessment may be conducted in a workplace or simulated environment |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended. |