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**THE REPUBLIC OF KENYA**

**COMPETENCY-BASED MODULAR CURRICULUM**

**FOR**

**POULTRY BROILER PRODUCTION**

**KNQF LEVEL: 4**

**ISCED PROGRAMME CODE:** 0811 354 A

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# FOREWORD

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

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

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

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

**PRINCIPAL SECRETARY**

**STATE DEPARTMENT FOR TVET**

**MINISTRY OF EDUCATION**

**PREFACE**

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

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

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

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

# ACKNOWLEDGMENT

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

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

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

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# ABBREVIATIONS AND ACRONYMS

|  |  |
| --- | --- |
| 2D | 2 Dimensional |
| 3D | 3 Dimensional |
| HACCP | Hazard Analysis Critical Control Point |
| KCSE | Kenya Certificate of Secondary Education |
| KNQA | Kenya National Qualifications Authority |
| KNQF | Kenya National Qualifications Framework |
| PPE | Personal Protective Equipment |

# **KEY TO ISCED UNIT CODE**



# COURSE OVERVIEW

Poultry Broiler Production Level 4 qualification consists of competencies that an individual must have to produce broiler chicken. It involves constructing poultry structures, managing poultry brooding, managing broiler finishing, producing broiler feed and managing poultry health and welfare.

The units of learning comprising Poultry Broiler Production Level 4 qualification include:

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit Code** | **Unit Title** | **Duration in Hours** | **Credit Factor** |
| **MODULE I** | | | |
| 0732 251 01A | Construction of Poultry Structures | 180 | 18 |
| 0811 251 02A | Management of Broiler Brooding | 120 | 12 |
|  | **TOTAL** | **300** | **30** |
| **MODULE II** | | | |
| 0811 351 03A | Management of Broiler Finishers | 80 | 8 |
| 0811 351 04A | Broiler Health and Welfare Management | 100 | 10 |
| 0811 351 05A | Production of Broiler Feeds | 80 | 8 |
|  | Industry Training | 320 | 32 |
|  | **GRAND TOTAL** | **880** | **88** |

**Entry Requirements**

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

1. Kenya Certificate of Secondary Education (KCSE) mean grade E;

**Or**

1. Poultry broiler production level 3

**or**

1. Any equivalent qualifications as determined by relevant regulatory body

**Trainer Qualifications**

Qualifications of a trainer for this course include:

1. Possession of Poultry Production Level 5 or level 5 in related trade area; and
2. License by TVETA

**Industry Training**

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

**Assessment for level 4**

The course shall be assessed formatively and summatively:

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

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

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

**Certification**

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

These certificates will be issued by Qualification Awarding Institution.

# 

# MODULE 1

# CONSTRUCTION OF POULTRY SRUCTURES

**UNIT CODE:** 0732 251 01A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Construct Poultry Structures

**Duration of Unit**: 180 hours

**Unit Description**

This unit specifies the competencies required to construct poultry structures. It involves preparing to construct poultry structures, constructing poultry house structure, installing poultry house structures and equipping poultry house.

**Summary of Learning Outcomes**

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

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
| 1. | Prepare to construct poultry structures | 40 |
| 2. | Construct poultry structures | 50 |
| 3. | Install poultry house structures | 50 |
| 4. | Equip poultry house | 40 |
| **Total** | | **180** |

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare to construct poultry structures | * 1. Types of poultry structures      1. Brooder      2. Rearing house      3. Store   2. Factors determining type of poultry house      1. Type of birds      2. Production system      3. Cost   3. Construction materials   4. Poultry structures site praparation   5. Personal Protection Equipment and Apparel (PPEs) required in poultry house construction      1. Overalls      2. Gumboots      3. Nose and mouth mask | * Written tests * Observation * Oral questions * Third party report |
| 1. Construct poultry structures | 2.1. Accessory structures required in a poultry house  2.1.1. Perches  2.1.2. Foot bath  2.1.3. Cages  2.2. Various designs of poultry structures.  2.3. Occupational safety and health procedures in poultry house construction.  2.4. Environmental protection measures observed during poultry house construction.  2.4.1. NEMA certification  2.5. Construction materials  2.5.1. Types  2.5.2. Quality  2.5.3. Storage | * Written tests * Observation * Oral questions * Third party report |
| 1. Construct and install poultry house structures | 3.1. Poultry house layout  3.1.1. Area measurement  3.1.2. Pegging  3.2. Poultry house foundation  3.2.1. Excavation  3.2.2. Mixing ratios of mortar  3.2.3. Stone laying  3.3. Construction of poultry house parts  3.3.1. Floor  3.3.2. Wall  3.3.3. Roof   * 3.4. Construction of security and bio-security measures   3.4.1. Predators barriers  3.4.2. Vehicle and human traffic controls  3.5. Construction of accessory structures  3.5.1. Perches  3.5.2. Cages  3.5.3. Poultry pallets  3.5.4. Foot bath  3.6. Site clearing  3.6.1. Debris disposal  3.7. Work inspection  3.8. Critical house requirements | * Written tests * Observation * Oral questions * Third party report * Project |
| 1. Equip poultry house | 4.1. Equipment and materia**l** necessary in a poultry house  4.1.1. Types and use (Waterers, feeders and thermometer)  4.1.2. Specifications and quantity  4.2. Factors considered in installation of equipment and materials in poultry house  4.2.1. Time  4.2.2. Pattern  4.2.3. Safety precautions  4.2.4. Number of birds  4.3. Testing-running of the equipment  4.3.1. Heat source  4.3.2. Waterers  4.3.3. Feeders  4.3.4. Ventilation  4.3.5. Lighting | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project and report writing |

**Suggested Methods of Delivery**

* Demonstration
* Practice by the trainee
* Field trips
* Discussions
* Direct instruction
* Case studies
* Simulation
* Audio-visual aids
* Modelling

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| Functional poultry farm with the following: | | |
| * Poultry house * Equipments   + Brooder   + Brooder thermometer   + Hygrometer   + Waterers   + Feeders   + Complete Battery cage system   + Bedding materials   + Buckets   + Grit / shell container * Sand bath | * Brooder * Store * Accessory structures * Saw * Stones * Sand * Cement * Ballast * Timber * Slashers * Crowbar | * Hammer * Nails * String * Wooden pegs * Tape measures * Barbed/chain link * Hoe * Shovels * Wheel burrow |

# MANAGEMENT OF BROILER CHICK BROODING

**UNIT CODE:** 0811 251 02A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Manage Broiler Chick Brooding

**Duration of Unit:** 120 hours

**Unit Description**

This unit specifies the competencies required to manage broiler chick brooding. It involves preparing chick brooder, acquiring day-old chicks, feeding brooding chicks, managing brooder house microclimate, maintaining brooder hygiene and performing chick vaccination. It also entails controlling poultry vermin, controlling poultry predators and monitoring chick performance.

**Summary of Learning Outcomes**

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

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
|  | Prepare chick brooder | 10 |
|  | Acquire day-old chicks | 10 |
|  | Feed brooding chicks | 20 |
|  | Manage brooder house micro climate | 10 |
|  | Maintain brooder hygiene | 10 |
|  | Perform chick vaccination | 10 |
|  | Control poultry vermin | 10 |
|  | Control poultry predators | 10 |
|  | Monitor chick performance | 30 |
| **Total** | | **120** |

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Prepare chick brooder | * 1. Suitable brooder construction materials   2. Brooder assembly guidelines.   3. Cleaning and disinfection of brooder   4. Types of bedding materials   5. Suitable bedding materials   6. Sterilization of bedding materials   7. Cleaning and sterilization of brooder equipment.   8. Installation of brooder equipment      1. Types of brooder equipment      2. Standard operation of the equipment      3. Time schedule for placement of various equipment   9. Test-running the equipment | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |
| 1. Acquire day-old chicks | 2.1. Handling of day-old chicks  2.2. Preparing for transportation  2.3. Transportation of chicks  2.3.1. Cages for transportation  2.3.2. Time of transportation  2.3.4. Safety during transportation | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |
| 1. Feed brooding chicks | 3.1. Feeding requirements of chicks  3.1.1. Amount  3.1.2. Feeding schedule  3.1.3. Ad libitum feeding  3.1.4. Light schedule  3.2. Water requirements of chicks  3.2.1. Quality  3.2.2. Quantity | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |
| 1. Manage brooder house micro climate | 4.1. Methods of assessing micro-climatic variations in brooder house  4.1.1. Use of tools and equipment  4.1.2. Animal behaviour  4.1.3. Human senses  4.1.4. Non-conventional aids  4.2. Corrective measures for micro-climate variations  4.2.1. Temperature  4.2.2. Humidity  4.2.3. Ventilation  4.2.4. sLighting. | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |
| 1. Maintain brooder hygiene | 5.1. Bio-safety practices required in brooding  5.2. Assessment of Bio-safety conformity  5.2.1. Staff Monitoring  5.2.3. Structures and facilities | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |
| 1. Perform chick vaccination | 6.1. Chick vaccination schedule  6.2. Handling and storage of vaccines  6.3. Equipment and tools required for vaccination.  6.4. Vaccination procedures.  6.4.1. Pre- vaccination preparation  6.4.2. Actual vaccination  6.5. Chick vaccination records | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Control poultry vermin | 7.1. Identification of vermin  7.1.1. Lice  7.1.2. Mites  7.1.3. Fleas  7.2. Vermin control measures  7.2.1. Chemical  7.2.2. Structural related  7.2.3. Cultural practices | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Control poultry predators | 8.1. Types of predators  8.1.1. Man  8.1.2. Cats  8.1.3. Dogs  8.1.4. .Mongoose  8.1.5. Hawks  8.1.6. Rats  8.2. Predator control measures for brooder house  8.2.1. Chemical  8.2.2. Mechanical  8.2.3. Biological  8.2.4. Structural –related controls | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Monitor chick performance | * 1. Growth and development pattern in chicks      1. Feathering      2. Weight gain   2. Chick behaviour      1. Feeding behaviour      2. Activity   3. Methods of assessing growth performance of chicks      1. Weighing      2. Physical appearance   4. Performance assessment equipment and tools.   5. Poultry vices      1. Types      2. Control measure   6. Culling of chicks      1. Culling criteria.      2. Stages of culling | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |

**Suggested Methods of Instruction**

* Project
* Demonstration by trainer
* Practice by the trainee
* Discussions
* Direct instruction
* Case study
* Audio –visual aids

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| Functional Brooder house with the following: | | |
| * Day old chicks * Heat source * Chick feeders * Chick drinkers * Light source | * Brooder guard * Curtains * Brooder thermometer * Hygrometer * Beddings | * Weighing scale * Chick feeds * Water * Vaccines * Vaccination equipment |

# MODULE 2

## BROILER FINISHERS MANAGEMENT

**UNIT CODE:** 0811 351 03A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Manage Broiler Finishers.

**Duration of Unit:** 80 hours

**Unit Description**

This unit specifies the competencies required to manage broiler finishers. It involves feeding broiler finishers, maintaining broiler house hygiene, managing broiler health, monitor broiler performance and maintaining broiler production records. It also entails managing broiler dispatch and sanitizing poultry house and equipment.

**Summary of Learning Outcomes**

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

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
|  | Feed broiler finishers | 20 |
|  | Maintain broiler house hygiene | 10 |
|  | Manage broiler health | 20 |
|  | Monitor broiler performance | 15 |
|  | Manage broiler dispatch | 5 |
|  | Sanitize poultry house and equipment | 5 |
|  | Maintain poultry records | 5 |
| **Total** | | **80** |

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Feed broiler finishers | * 1. Type and form of poultry feed   2. Feeding tools and equipment      1. Weighing scale / balance      2. Grower feeder      3. Drinker      4. Scoop   3. Feed requirements of broilers      1. Amount      2. Feeding schedule   4. Water requirements of broilers      1. Quality      2. Quantity | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |
| 1. Maintain broiler house hygiene | 1. Biosafety practices required in broiler house 2. Bio-safety Structures and facilities 3. Wet litter  * Causes of wet litter * Corrective measures for wet litter  1. Dusty litter  * Corrective measures for dusty litter  1. General litter maintenance practices  * Adequate ventilation * Turning * Litter addition | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Manage broiler health | 1. Broiler vaccination schedule 2. Equipment and tools required for vaccination 3. Vaccination procedures  * Pre- vaccination preparation * Actual vaccination  1. Broiler vaccination records | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Monitor broiler performance | 1. Broiler behaviour  * Feeding behaviour * Activity * Vices  1. Poultry vices  * Types * Control measures  1. Methods of assessing growth performance of chicks  * Weighing * Physical appearance | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |
| 1. Manage broiler dispatch | 1. Catching of meat birds  * Methods * Tools * Precautions  1. Weighing, sorting and grading  * Weighing methods * Weighing equipment- * Sorting criteria * Grading  1. Packaging and loading of meat poultry  * Packaging materials * Packaging methods * Packaging precautions  1. Transportation of broilers  * Mode of transport * Animal welfare regulations  1. Dispatch records | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Sanitize poultry house and equipment | 1. Methods of litter disposal  * Disease precautions * Equipment and tools  1. Suitable detergents, tools and sanitizers for cleaning 2. House disinfection  * Methods of disinfection * Disinfection procedures * Personal protection equipment  1. Cleaning procedures for feeders and waterers 2. Methods of sanitising  * Heat * Steam * Hot water * Chemical * Sun drying | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Maintain poultry records | 1. Types of poultry records 2. Storage of poultry records | * Written tests * Observation * Oral questions * Third party report * Interviewing * Project |

**Suggested Methods of Instruction**

* Project
* Demonstration by trainer
* Practice by the trainee
* Discussions
* Direct instruction
* Case study
* Audio –visual aids

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| Functional Broiler unit with the following: | | |
| * + Shovel   + Broom   + Wheel burrow   + Sanitizing agents   + Brush   + Detergents   + Knapsack sprayer   + Litter   + Rake   + Hammer   + Timber   + Nails   + Computer   + Printer | * + Saw   + Catching hook   + Weighing scale   + Jerry can   + Crates   + Feeders   + Drinkers   + Grit container   + Grit   + Water   + Feed   + Vaccine   + Stationery | * + Multivitamins   + Syringe   + Needles   + Cool box   + Freezer   + Disinfectant |

## BROILER HEALTH AND WELFARE MANAGEMENT

**ISCED UNIT CODE:** 0811 341 04A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Manage Broiler Health

**Duration of Unit 100** hours

**Unit Description**

This unit specifies the competencies required to manage poultry health and welfare. It involves maintaining poultry bio-security, acquiring poultry health equipment and materials, managing poultry vaccination and controlling poultry parasites.

**Summary of Learning Outcomes**

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

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
|  | Maintain poultry bio-security | 20 |
|  | Acquire poultry health equipment and materials | 10 |
|  | Manage poultry vaccination | 20 |
|  | Control poultry parasites | 20 |
|  | Manage poultry diseases and vices | 20 |
|  | Maintain poultry health records | 10 |
| **Total** | | **100** |

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Maintain poultry biosecurity | * 1. Biosecurity in a poultry farm      1. Measures      2. Regulatory bodies   2. Biosecurity structures and equipment      1. Boundary fence (electric or stone wall)      2. Gate      3. Entry showers, both at the gate and at the house sites      4. Foot bathes and vehicle sprayers      5. Hand washing gadgets      6. Post mortem rooms      7. Mortality disposal pits      8. Rodent and pest control traps   3. Written standard biosecurity operational procedures in poultry farms   4. Poultry waste management      1. Litter (droppings, feathers, spilt feed, dead birds)      2. Other wastes (plastics, glass, paper, metals and fluids) | * Written tests * Observation * Oral questions * Third party report * Interviewing * Case study reports |
| 1. Acquire poultry health equipment and materials | * 1. Flock health management tools, equipment, materials and supplies      1. Sprayers      2. De-beakers      3. Chicken catching rods   2. Maintenance: cleaning, trouble shooting, servicing and repairs | * Written tests * Observation * Oral questions * Third party report * Interviewing |
| 1. Manage poultry vaccination | * 1. Factors considered when developing poultry vaccination schedule      1. Disease prevalence      2. Disease severity      3. Economic importance   2. Types of vaccines (live attenuated, inactivated, vectored/recombinant)   3. Reconstitution of poultry vaccines   4. Vaccine handling   5. Refrigeration methods   6. Record keeping   7. Vaccination sites and routes   8. Vaccine intake   9. Animal welfare regulations   10. Poultry handling   11. Recording vaccination details       1. Type of vaccine       2. Type of disease vaccinated against       3. Age of poultry       4. Date and time of vaccination       5. Date of manufacture and expiry of vaccine       6. Vaccine source and batch number       7. Route of vaccine administration (IM, wing stab, sub cutaneous, intra nasal, intra ocular or spray, follicular swabbing, drinking water application, scarification)       8. Number of birds vaccinated       9. Identification of birds (flock, type, breed) | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Control poultry parasites, pests and predators | * 1. External and internal poultry parasites      1. Types - Internal (round worms, tape worms); External(mites, soft ticks, fleas)      2. Life cycle      3. Symptoms of infestation      4. Prevention and control measures   2. Poultry pests and predators      1. Types      2. Control measures | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Manage poultry diseases and vices | * 1. Poultry gross anatomy and basic physiology   2. Normal poultry behaviour   3. General signs of ill health in poultry      1. Ante mortem observation      2. Post mortem observation   4. Common poultry diseases      1. Types         1. Viral: Newcastle, Fowl pox, Gumboro / Infectious Bursal Disease, Mareks Disease, Infectious Bronchitis         2. Bacterial: Fowl typhoid, Chronic Respiratory Disease complex, Infectious Coryza and Collibacilosis (omphalitis and yolk sac infection)         3. Protozoal: Coccidiosis         4. Metabolic / nutritional disorders: Ascites/ water belly, gout and toxic fat syndrome         5. Poisoning: fungal or chemical      2. Causes      3. Symptoms      4. Prevention and control measures   5. Zoonotic poultry diseases: (Sallmonelosis, Listeriosis, Campylobacter)   6. Poultry vices      1. Types of vices      2. Prevention and control measures   7. Collection of monitoring and diagnostic samples   8. Animal welfare      1. Poultry handling and care      2. Transportation      3. Regulations | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Maintain poultry health records | * 1. Importance of records   2. Types of health records      1. Vaccination      2. Deworming      3. Treatment      4. Routine health management practices –debeaking, culling   3. Record keeping procedures | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

* Project
* Demonstration by trainer
* Practice by the trainee
* Field trips
* Discussions
* Direct instruction
* Electronic audio-visual presentations
* Simulations

**Recommended Resources**

|  |  |  |
| --- | --- | --- |
| Functional poultry farm with the following: | | |
| * Stationery (pen and sketching books) * Poultry shackles * Scapels * Cleaning materials and equipment * Disinfectants * Sanitizers * Disposal pits * Weighing scales * Debeaking machine * Wing stab needles * Strategic poultry drugs – preventative and emergency | * Automatic vaccination syringes * Syringes and needles * Vaccines * Poultry dewormers * Coccicidals * Poultry acaricides * Poultry dusts * Footbaths * Spayers * Waste management equipment and material * Litter rakes * Litter bins * Rodenticides * Rodent control traps | * Flock health records * Water * PPEs * Standard work place procedures * Animal diseases act Cap 365, legal notice 47 of 1985 * NEMA regulations and audits * Livestock Production Manual |

## PRODUCTION OF BROILER FEEDS

**ISCED UNIT CODE:** 0811 341 05A

**Relationship to Occupational Standards**

This unit addresses the Unit of Competency: Produce Broiler Feed

**Duration of Unit 80** hours

**Unit Description**

This unit specifies the competencies required to produce broiler feed. It involves acquiring poultry feed ingredients, processing broiler feed ingredients, mixing the processed feed ingredients and storage of the formulated feed.

**Summary of Learning Outcomes**

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

|  |  |  |
| --- | --- | --- |
| **S/No** | **Learning Outcomes** | **Duration (Hours)** |
|  | Acquire broiler feed ingredients | 15 |
|  | Process broiler feed ingredients | 30 |
|  | Mix broiler feed ingredients | 30 |
|  | Store broiler feed | 5 |
| **Total** | | **80** |

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

|  |  |  |
| --- | --- | --- |
| **Learning Outcome** | **Content** | **Suggested Assessment Methods** |
| 1. Acquire broiler feed ingredients | * 1. Methods of feed formulation      1. Pearson square      2. Step by step      3. Trial and error      4. Computer simulation   2. Source of feed ingredients   3. Factors to consider when sourcing feed ingredients      1. Cost      2. Availability      3. Nutritional values      4. Ability to test quality      5. Toxins and anti-nutritive factors      6. Competition with humans   4. Handling and storage methods of feed and feedstuff   5. Feedstuff sampling procedures   6. Nutrient content of feedstuff   7. Appraisal methods for feedstuff quality   8. Types of feed packaging materials   9. Labelling requirements for feed | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Process broiler feed ingredients | * 1. Processing methods for feed ingredients      1. Drying      2. Roasting or boiling      3. Grinding      4. Dehulling or dehusking      5. Oil extraction (pressing or solvent)   2. Feed processing machinery | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Mix processed broiler feed ingredients | * 1. Mixing methods      1. Manual      2. Mechanical   2. Types of mixers      1. Vertical      2. Horizontal      3. Transverse   3. Forms of feed presentation   4. Post mixing processing      1. Pelleting      2. Crumbing | * Observation * Written tests * Oral questions * Interviewing * Third party report |
| 1. Store broiler feed | * 1. Feeds grading materials   2. Weighing of feeds   3. Packaging and labelling   4. Feed storage methods      1. Bulked      2. Bagged   5. Feed storage conditions | * Observation * Written tests * Oral questions * Interviewing |

**Suggested Methods of Instruction**

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

**Recommended Resources**

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| Functional poultry farm or feed processing plant with the following: | | |
| * Tractors * Trailer * Hammer mills * Grinding mills * Pelleting machines * Oil pressers or extraction solvents * Feed mixers * Poultry feedstuff * Detergents * Fumigants | * Water * Packaging materials * Labels or labelling material * Feed stores * Stationery * Weighing balances * Calculators and / or computers * Pest control equipment and materials | * Sampling kits * Feedstuff nutrient content tables * Gunny bags * Sealing twines or threads * Sealing machines * PPEs * Livestock production manuals * Journal of poultry science |