****

**REPUBLIC OF KENYA**

**NATIONAL OCCUPATIONAL STANDARD**

**FOR**

**POULTRY (LAYER PRODUCTION) OPERATOR**

**KNQF LEVEL: 4**

**ISCED CODE: 0811 354 A**

First published 2018

Revised 2024

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# FOREWORD

Agriculture plays an important role in Kenya’s economy. This importance is reflected in the positive correlation between growth in the agricultural sector and that of the national economy. Kenya’s economy registered a growth of 3.3% between 2013 and 2014, agriculture was the leading sector which contributed 27.3% to the Gross Domestic Product (GDP) in 2014. In this regard, crops, animal production, and fishing and aquaculture contributed 19.7%, 4.9% and 0.8% respectively (25.4%), while the balance of 1.9% came from forestry and other support activities. Like most countries in Africa, majority (61%) of Kenya’s population rely on agriculture for employment despite the challenges of climate change, soil degradation and increasing population pressure. In order to enhance the productivity of the work force and ensure a productive and innovative agricultural sector, as well as food security, meaningful education and training of all people involved is of utmost importance.

In the past Agricultural Technical and Vocational Education and Training (ATVET) did not always receive adequate attention from policy-makers. The education system emphasized on acquiring knowledge rather than skills development. This resulted to most farmers and the stakeholders in agriculture lacking the requisite skills. Current reforms in the education system aim at addressing this challenge by reforming the curriculum, its delivery and its assessment. These reforms can only be achieved through Competency Based Education and Training (CBET) approach. The reforms demand for a competency-based curriculum which is a tool that will aid in the development of skills, knowledge and attitudes of the farmers. Such training will improve crop and animal husbandry skills which will in turn contribute to increased productivity and improvement of agriculture in the country. Ideally, this education and training will not only include farmers, but all professions involved in agriculture

These Occupational Standards as such presents us with a base for developing curricula for training in the poultry subsector and presents the basis for content development for the curriculum in Layer Production Operations Level 4. It will lead to a situation where the trainees will gain skills required in their occupation/jobs. The curriculum to be developed based on these OS will revolutionize the agriculture sector in Kenya.

# PREFACE

Poultry farming has been on the increase in the last ten years due to diminishing land size, high population density and the escalating un-employment levels in formal sector. It contributes to the lives of 21 million Kenyans and 6.1% of the agricultural GDP. There are approximately 32 million birds in Kenya out of which 76% are free ranging indigenous chicken, 8% are broilers and 14% commercial layers. The indigenous poultry production involves 75% of rural households. As of 2011, it was reported that approximately 71% of eggs and poultry meat in Kenya are derived from indigenous poultry. In 2006, it was reported that commercial poultry production constitutes 23.8% of the total poultry population, with broilers representing 16.2% and layers another 7.8%. Other poultry species such as ducks, guinea fowl, Quails and turkeys comprise about 2.2% of the total poultry population. The industry is therefore is supposed to play a strategic role in the ongoing socio economic pillar under the vision 2030.

However, the industry has seen slow growth over the past years due to lack of skills and increasing costs of production. This is despite the fact that the sub-sector contributes positively to wealth creation, poverty alleviation, and gender equity especially in the rural areas. The industry contributes to the macro economy by generating incomes for the value chain actors, creation of employment opportunities for rural people and provision of source of protein for poor families and manure for their gardens.

To address the challenge of lack of skilled labour, a Competency Based curriculum development process was initiated. Using the DACUM methodology Job or Occupational Analysis Chart and later these Occupation standards were developed in collaboration with the industry players and guided by Curriculum Development Assessment and Certification Council (CDACC). 11 Jobs/Occupations were identified. The information generated from the task analysis was also used to develop the Units of competences for each job. This was done by experts drawn from Technical training institutions, Universities and industry representatives. The result of the analysis was to the realization of Occupational Standards for 11 jobs along the poultry value chain.

The OS were presented to the Poultry Sector Skills Advisory Committee (PSSAC) who made recommendations for improvement and later submitted to the next stages of approval by the CDACC. The OS development process was a rigorous exercise that involved wide consultations with various stakeholders like expert workers with the aim of enriching it and promoting its acceptance. The end product is a rich and well thought tool that will be used to develop Layer Production Operations Level 4 curriculum that shall deliver Competence Based Training and produce competent graduates that can employed, entrepreneurs or self-employed in the poultry industry.

## ACKNOWLEDGEMENTS

These occupational standards were developed through the combined efforts of different stakeholders in the poultry subsector namely private practitioners, Dairy Training Institute (DTI), Animal Health Training institutes (AHITI), regulators and key state departments. We wish to acknowledge the invaluable contribution received from the private sector industry players who provided inputs towards the development of these occupational standards against which the curriculum was developed.

With the Occupational /Job Analysis charts in hand, the stakeholders provided technical inputs towards the development and completion of this OS. They sat through many hours putting together all the knowledge, skills and attitudes that a Poultry industry worker would require in effectively performing his/ her duties and tasks as per the occupational standards developed.

We are most sincerely thankful to the heads of these institutions who released their staff to join in this important course. Our gratitude goes to the various facilitators that moderated several workshops and ensured that all deliberations and outputs were captured and compiled. These persons did not only demonstrate patience, but also provided leadership by motivating and guiding the groups towards the finalization of this curriculum. We cannot forget to thank the government agencies that regulate the Technical and Vocational Education and Training (TVET) system namely TVET Authority and CDACC through whom guidance and support was provided on this Occupational Standards development.

We are greatly indebted to the Food Security and Drought Resilience Programme (FSDRP) with support of the German Development Cooperation (GIZ), which enabled the implementation of the curriculum development process through the Food Security Project (FSP). In the same breath, we are indebted to the National Coordinator of the GIZ Comprehensive Africa Agricultural Development Programme (CAADP) ATVET project who was instrumental in enabling the smooth and close cooperation between the project and the key government ministries namely Ministry of Agriculture, Livestock, Fisheries and Irrigation (MoALF&I) and Ministry of Education (MoE).

Last but not least, we are grateful to any other person, institution, organization or company who played any role in making this process successful but has not been mentioned. We dearly acknowledge your contribution and support.

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# ABBREVIATIONS AND ACRONYMS

|  |  |
| --- | --- |
| 2D | 2 Dimensional |
| 3D | 3 Dimensional |
| ATVET | Agricultural Technical and Vocational Education and Training |
| AU - IBAR | African Union – InterAfrican Bureau for Animal Resources |
| CAADP | Comprehensive Africa Agricultural Development Programme |
| CAD | Computer Assisted Drawing |
| CBET | Competency Based Education and Training |
| CDACC | Curriculum Development Assessment and Certification Council |
| CEO | Chief Executive Officer |
| DACUM | Develop a Curriculum |
| DVS | Director of Veterinary Services |
| EMCA | Environmental Management and Conservation Act |
| EMS | Environmental Management Systems |
| FSDRP | Food Security and Drought Resilience Programme |
| FSP | Food Security Project |
| GDP | Gross Domestic Product |
| GMP | Good Manufacturing Practices |
| HACCP | Hazard Analysis Critical Control Point |
| ICT | Information Communication Technology |
| IM | Intra Muscular |
| KCSE | Kenya Certificate of Secondary Education |
| KNQA | Kenya National Qualifications Authority |
| KNQF | Kenya National Qualifications Framework |
| KSPCA | Kenya Society for the Care and Protection of Animals |
| LCD | Liquid Crystal Display |
| MAP | Modified Atmosphere Packaging |
| MoALF&I | Ministry of Agriculture, Livestock, Fisheries and Irrigation |
| MoE | Ministry of Education |
| NCA | National Construction Authority |
| NEMA | National Environmental Management Authority |
| NEPAD | New Partnerships for African Development |
| NGO | Non-Governmental Organization |
| NPCA | NEPAD Planning and Coordinating Agency |
| OIE | World Organization for Animal Health |
|  | Occupational Standard |
| OSH | Occupational Safety and Health |
| PPE | Personal Protective Equipment |
| PSSAC | Poultry Sector Skills Advisory Committee |
| SOP | Standard Operation Procedures |

# KEY TO UNIT CODE



# OVERVIEW

Poultry Layer Production level 4 qualification consists of competencies that a person must have to rear layer poultry. It involves constructing poultry structures, managing poultry brooding, growing poultry growers, managing laying poultry, producing poultry feeds and managing poultry health and welfare.

The units of competency comprising poultry layer production Level 4 qualification include the following core units:

**CORE UNITS OF COMPETENCY**

|  |  |
| --- | --- |
| **ISCED Unit Code** | **Unit Title** |
| 0732 251 01A | Construct Poultry Structures |
| 0811 251 02A | Manage Poultry Brooding |
| 0811 351 03A | Manage Poultry Growers |
| 0811 351 04A | Manage Laying Poultry |
| 0811 351 05A | Manage Poultry Health and Welfare |
| 0811 351 06A | Produce Poultry Feeds |

# CONSTRUCT POULTRY STRUCTURES

**ISCED UNIT CODE:** 0732 351 01 A

**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.

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| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Prepare to construct poultry structures | 1. Suitable poultry house design for construction selected and acquired based on production system, cost and farmers’ preferences 2. Construction materials are procured based on selected procurement method 3. Construction materials are transported to construction site according to work place policy 4. Construction materials are stored according to work place policy 5. Site of the poultry house is determined based on guidelines in the ***Poultry Production Manual (PPM)*** 6. ***Personal Protection Equipment and Apparel (PPE)***are gathered and donned based on work requirements |
| 1. Construct poultry house structure | 1. ***Poultry house*** layout is pegged according to design 2. Poultry house foundation is excavated based on house design, topography and soil type 3. Poultry house foundation is laid based on type of construction materials and design 4. ***Poultry house parts*** are constructed as per house design and type of construction materials procured. |
| 1. Install poultry house structures | 1. Suitable ***poultry house structures*** designs are identified based on production system, cost and farmers’ preferences 2. Fixed poultry house structures are constructed as per design and type of construction materials available 3. Period of installation of poultry house structures is determined based on the age of the birds 4. Movable poultry house structures are installed in the poultry house based on the design and pattern recommended in the PPM |
| 1. Equip poultry house | 1. ***Poultry house equipment*** are acquired based on work place procedures and poultry house requirements 2. Poultry house equipment are stored according to work place procedures 3. Poultry house equipment are installed as per specifications in the PPM |

**RANGE**

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

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| **Variable** | **Range** | | |
| 1. Poultry Production Manual (PPM) may include but not limited to: | * National Poultry Development Programme Manual * Production manuals by breeding and multiplication organizations like Issa Brown, Cobb, Kenchic and KALRO | | |
| 1. Personal Protection Equipment and Apparel (PPE) may include but not limited to: | * Overalls * Gumboots * Nose and mouth mask | * Goggles * Gloves * Head gear | |
| 1. Poultry house may include but not limited to: | * Standard open sided house * Environmentally controlled house * Slated floor house | | * Battery cage house * Deep litter house |
| 1. Poultry house parts may include but not limited to: | * Walls * Floor * Roof |  | |
| 1. Poultry house structures may include but not limited to: | * Nest boxes * Perches * Cages * Pallets | * Electrical / water lines * Slatted floors * Brooder | |
| 1. Poultry house equipment may include but not limited to: | * Waterers * Feeders * Thermometer | * Heat source * Hygrometer | |

**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
* Fabrication
* Negotiation
* Numeracy
* Observation
* Problem solving

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Area measurements and conversions
* Basic carpentry
* Basic masonry
* Feeding and watering spacing allowances
* Geometry (symmetry)
* Handling and assessment construction materials
* House orientation
* Occupational health and safety procedures
* Types of poultry house equipment

**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 and acquired suitable poultry house design for construction based on production system, cost and farmers’ preferences   2. Determined site of the poultry house based on guidelines in the Poultry Production Manual (PPM)   3. Gathered and donned appropriate Personal Protection Equipment and Apparel (PPE) based on work requirements   4. Constructed poultry house parts as per house design and type of construction materials procured.   5. Identified suitable ***poultry house structures*** designs based on production system, cost and farmers’ preference.   6. Constructed poultry house structures as per suitable design and type of construction materials available   7. Installed movable poultry house structures timely following suitable design and pattern recommended in the PPM   8. Installed poultry house equipment are following suitable pattern recommended in the PPM   9. Poultry house equipped with required poultry house structures and equipment |
| 1. Resource Implications | The following resources **MUST** be provided:   * 1. Assessment location / Upcoming layer production farm   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning   4. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or during industrial attachment. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MANAGE POULTRY BROODING

**ISCED UNIT CODE:** 0811 351 02 A

**UNIT DESCRIPTION**

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

**ELEMENTS AND PERFORMANCE CRITERIA**

|  |  |
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| **ELEMENT**  These describe the key outcomes which make up workplace function. | **PERFORMANCE CRITERIA**  These are assessable statements which specify the required level of performance for each of the elements.  ***Bold and italicized terms are elaborated in the range.*** |
| 1. Prepare chick brooder | 1. Brooder construction materials are selected as per farm practices 2. Brooder is constructed as per poultry production guidelines. 3. Equip chick brooder with ***chick brooder equipment*** as per poultry production guidelines 4. Cleaning and disinfection of the brooder based on Standard Operation Procedures (SOPs) of poultry production facilities 5. Brooder equipment are cleaned and sterilized as per the SOPs. |
| 1. Acquire day-old chicks | 1. Day-old chicks are sourced as per work place policy and Poultry Production Manual (***PPM***) guidelines 2. Day-old chicks are transported as per PPM and animal welfare guidelines 3. Placement of day-old chicks is done as per poultry production guidelines in the PPM |
| 1. Feed brooding chicks | 1. Suitable type and form of chick feed is identified and selected based on flock age and feeding requirements 2. Feeding frequency is determined based on PPM guidelines 3. Feeding and watering equipment are ***prepared*** based on their condition, position and flock size 4. Adequate amount of chicks feed and water is determined and dispensed based on flock feeding requirements |
| 1. Manage brooder house micro climate | 1. Micro climate tools and equipment are identified as per environmental conditions and bird requirements. 2. ***Micro climate*** variations are assessed as per poultry production manual guidelines. 3. Brooder micro climate is moderated as per the requirements of the birds |
| 1. Maintain brooder hygiene | 1. Bio-safety measures are implemented as per guidelines in the poultry production manual and work place policies 2. Bio-safety conformity is monitored as per work place requirements |
| 1. Perform chick vaccination | 1. Vaccination ***preparations*** are done accordance with PPM and vaccine manufacturer’s guidelines 2. Poultry vaccine is re-constituted according to manufacturer’s guidelines 3. Poultry vaccines are administered in accordance with developed schedule 4. Vaccinated poultry are observed to ascertain vaccine intake and check for abnormal reactions in accordance with PPM and vaccine manufacturer’s guidelines 5. ***Vaccination details*** are recorded as per PPM guidelines and farm policies |
| 1. Control poultry vermin | 1. Chicken vermins are identified based on the geographic area 2. Vermin control method is selected according to the type of vermins identified 3. Vermins are controlled as per the type of method selected, vermicide manufacturer’s guidelines and poultry production manual |
| 1. Control poultry predators | 1. Chicken predators are identified based on the geographic area 2. Predator control method is selected according to the type of predators identified 3. Predators are controlled as per the type of method selected and manufacturer’s guidelines of control drug or trap. |
| 1. Monitor chick performance | 1. Poultry vices are monitored as per PPM guidelines and work place practices 2. ***Performance assessment*** is carried out as per PPM guidelines and work place procedures 3. Culling criteria are designed based on chick performance, stocking capacity and work place procedures 4. Chicks are culled according to designed culling criteria and work place procedures. |

**RANGE**

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

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| **Variable** | **Range** | |
| 1. Brooder construction materials may include but not limited to: | * Cardboard * Wooden pegs * Litter material |  |
| 1. Chick brooder equipment may include but not limited to: | * Brooder thermometer * Charcoal jiko * Infra-red bulb * Gas burner * Kerosene lamb | * Chick feeder * Chick drinker * Hygrometer |
| 1. SOPs may include but not limited to: | Guidelines on how to clean and sanitize a poultry house, its internal structures and equipment in place or out of place | |
| 1. PPM may include but not limited to: | * National Poultry Development Programme Manual * Production manuals by breeding and multiplication organizations like Issa Brown, Cobb, Kenchic and KALRO | |
| 1. Prepared may include but not limited to: | * Removing foreign material * Removing spoilt left-over feed * Washing * Drying * Positioning in right pattern and height | |
| 1. Micro climate may include but not limited to: | * Humidity * Temperature * Light * Ventilation/ Air Flow | |
| 1. Preparations may include but not limited to: | Activities that are carried out before, during and after vaccination;   * Provision of anti-stress nutritional premixes * Feed and water withdrawal * Confirmation of bird numbers to determine dosage * Provision of disinfectant free water * Positioning vaccine receptacles in the poultry house for oral vaccines * Confine and restrain poultry for injectable and ocular-nasal vaccines | |
| 1. Vaccination details may include but not limited to: | * Type of vaccine * Type of disease vaccinated against * Age of poultry * Date and time of vaccination * Date of manufacture and expiry of vaccine * Vaccine source and batch number * Route of vaccine administration (IM, wing stab, sub cutaneous, intra nasal, intra ocular or spray) * Number of birds vaccinated * Identification of birds (flock, type, breed) | |
| 1. Performance assessment may include but not limited to: | * Weighing * Calculating growth rate * Observing physical appearance, gait and behavior | |

**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:

* Carpentry
* Communication
* Handling
* Negotiation
* Numeracy
* Observation
* Chick handling
* Vaccination skills

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Brooder design and requirements
* Carpentry
* Chick sources and acquisition
* Chick transportation
* Animal welfare regulations
* Chick placement
* Algebra
* Chick feeds and feeding requirements
* Chick feeding and watering practices
* Scales and measurement
* Chick micro climate
* Chick behavior
* Heat sources
* Heat transfer
* Light sources and intensity
* Lighting programmed
* Brooder bio-safety
* Chick diseases
* Poultry vaccination programme
* Vermin, pest and predator control

**EVIDENCE GUIDE**

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

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| --- | --- |
| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Acquired chicks in a timely and efficient manner   2. Transported chicks with due consideration to animal welfare regulations   3. Accurately set-up chick brooder micro climate and equipment   4. Placed chicks in the brooder considering suitable stocking density   5. Appropriately moderated brooder micro- climate   6. Provided correct type of chick feed at adequate amounts and frequency   7. Implemented suitable bio- safety measures   8. Followed vaccination schedule as planned   9. Put in place control measures for vermins and predators. |
| 1. Resource Implications | The following resources **MUST** be provided:   * 1. Assessment location / Layer farm with brooder unit   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or during industrial attachment. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MANAGE POULTRY GROWERS

**ISCED UNIT CODE:** 0811 351 03 A

**UNIT DESCRIPTION:**

This unit specifies the competencies required to manage poultry growers. It involves sanitizing grower house, setting-up grower house equipment and structures, transferring poultry to growers’ house, feeding growing poultry, managing growers house litter, poultry house micro climate and growers’ health. It also includes managing biosafety measures and monitoring growing poultry.

**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. Sanitize poultry equipment and structures | 1. Litter removal and cleaning of grower house is performed as per poultry production guidelines 2. Litter disposal is performed as per work place procedures 3. Sanitization procedures are performed as per manufacturer’s guidelines. |
| 1. Set-up grower house equipment and structures | 1. Physical requirements for the grower house are determined as per poultry production guidelines in the PPM 2. Grower house ***equipment and structures*** are installed timely following suitable patterns recommended in the PPM |
| 1. Transfer poultry to growers’ house | 1. Growers transfer precautions are determined as per animal welfare guidelines 2. Stocking density is determined based on grower spacing requirements 3. Grower poultry are moved based on age and PPM guidelines with due regard to their welfare 4. Non-performing growers are culled as per work place practices and PPM guidelines |
| 1. Feed growing poultry | 1. Type and form of poultry feed is determined and acquired based on flock age and work place procurement procedures 2. ***Feeding tools and equipment*** are identified and gathered as per poultry production guidelines. 3. Amount of grower feed is determined and weighed based on grower flock feeding requirements 4. Feeding and watering equipment are ***prepared*** based on their condition, position and flock size 5. Grower feeding frequency is determined based on guidelines in the PPM 6. Grower feed and water is dispensed according to amount of weighed feed and water requirements |
| 1. Manage growers house litter | 1. Grower house litter is identified, sourced and placed based on type of house structure, production system, suitability, cost and availability 2. Grower poultry litter is raked periodically based on its physical conditions 3. Spoilt litter is replaced based on recommendations in the PPM 4. ***Litter maintenance precautions*** areobserved as per poultry production guidelines |
| 1. Manage poultry house micro climate | 1. Micro climate assessment is performed as per PPM guidelines, animal welfare regulations and work place requirements 2. Micro climate is moderated as per poultry environmental requirements, PPM guidelines and farm practice |
| 1. Manage Growers health | * 1. Vaccination schedule is identified based on veterinarian advice   2. Vaccination schedule is implemented timely according to veterinary regulations   3. Post-vaccination behavior is monitored as per farm practices   4. Grower vaccination records are kept as per work place requirements   5. Grower deworming schedule is identified and executed as veterinary regulations and work place practices   6. Vermin control method is selected according to the type of vermins identified   7. Vermins are controlled as per the type of method selected, vermicide manufacturer’s guidelines and poultry production manual   8. Predator control method is selected according to the type of predators identified   9. Predators are controlled as per the type of method selected and manufacturer’s guidelines of control drug or trap. |
| 1. Manage biosafety measures | * 1. Bio-safety measures are implemented as per design, PPM and farm practices   2. Bio-safety conformity is monitored as per design, PPM and farm practices |
| 1. Monitor growing poultry | * 1. Performance assessment equipment and tools are identified based on poultry production requirement.   2. Performance assessment is carried out as per PPM guidelines and work place procedures   3. Culling criteria are designed based on chick performance, stocking capacity and work place procedures   4. Growers are culled according to designed culling criteria and work place procedures. |

**RANGE**

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

|  |  |
| --- | --- |
| **Variable** | **Range** |
| 1. Equipment and structures may include but not limited to: | * Perches * Thermometer * Curtains |
| 1. Feeding tools and equipment may include but not limited to: | * Grower feeder * Drinker * Feed scoop |
| 1. Prepared may include but not limited to: | * Removing foreign material * Removing spoilt left-over feed * Washing * Drying   Positioning in right pattern and height |
| 1. Litter maintenance precautions may include but not limited to: | * Avoid water spillages * Repair of leaking roofs * Proper ventilation |

**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
* Culling
* Numeracy
* Handling
* Observation
* Poultry handling
* Vaccination

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Bio-safety measures
* Environmental physiology of poultry
* Poultry behavior
* Poultry Growth & development
* Grower feeding
* Grower vaccination schedule
* Poultry performance monitoring
* Poultry handling
* Scales and measurement

**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. Set grower house structures and equipment appropriately and timely   2. Provided growers with correct amount of feed and water   3. Maintained litter in good dry condition   4. Moderated grower house micro-climate appropriately   5. Observed bio- safety measures   6. Followed vaccination schedule as planned   7. Put in place vermin and predators control measures. |
| 1. Resource Implications | The following resources **MUST** be provided:   * 1. Assessment location / Layer farm with grower flock   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or during industrial attachment. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MANAGE LAYING POULTRY

**UNIT CODE:** **0811 351 04 A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to manage laying poultry. It involves feeding laying birds, cleaning feeding and watering equipment, maintaining suitable litter condition, managing poultry house micro climate and maintaining layers health. It also entails monitoring poultry performance, handling poultry eggs and maintaining poultry records.

**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. Feed laying birds | 1. Suitable type and form of poultry feed is determined and acquired based on flock age and work place procurement procedures 2. ***Feeding tools and equipment*** are identified and gathered as per poultry production guidelines. 3. Amount of layer feed is determined and weighed based on grower flock feeding requirements 4. Feeding and watering equipment are ***prepared*** based on their condition, position and flock size 5. Layer feeding frequency is determined based on guidelines in the PPM 6. Layer feed and water is dispensed according to amount of weighed feed and water requirements |
| 1. Clean feeding and watering equipment | 1. Feeding and watering equipment are emptied based on the condition of content 2. Automated or fixed feeding and watering equipment are cleaned in place following good manufacturing practices (GMP) and hazard critical control point (HACCP) procedures 3. Non-automated feeding and watering equipment are removed from layer house and cleaned out of place following GMP and HACCP procedures |
| 1. Maintain suitable litter condition | 1. Layer house litter is identified, sourced and placed based on type of house structure, production system, suitability, cost and availability 2. Layer poultry litter is raked periodically based on its physical conditions 3. Spoilt litter is replaced based on recommendations in the PPM 4. ***Litter maintenance precautions*** are observed as per poultry production guidelines |
| 1. Manage poultry house micro climate | 1. Tools and equipment for ***micro climate*** moderation are identified, gathered and installed as per poultry production guidelines 2. Micro climate assessment is performed as per work place requirement 3. Micro climate is moderated as per poultry environmental requirements, PPM guidelines and farm practice |
| 1. Maintain layers health | 1. Layer farm biosecurity measures are implemented as per programme design and work place procedures 2. Vaccination equipment are determined as per the manufactures guidelines 3. ***Vaccination procedures*** are carried out as per type of vaccine and vaccination schedule 4. Layers vaccination records are kept as per organizational requirements 5. Layers deworming is executed based on veterinarian advice and farm schedule 6. Vermin control is carried out as per farm practice 7. Layers health is monitored as per farm practice. |
| 1. Monitor poultry performance | 1. ***Poultry vices*** are monitored and controlled according to PPM recommendations and farm practices 2. ***Performance assessment*** is carried out as per work place procedures 3. Non-performing layers are culled as per provided culling criteria and work place procedures. |
| 1. Handle poultry eggs | * 1. Poultry eggs collected as per the work place practices   2. Poultry eggs are Sorted and graded as per poultry production requirement   3. Poultry eggs are packaged as per the farm practices.   4. Poultry eggs are branded based on the KEBS specifications   5. Egg production and sales are recorded as per farm practices |
| 1. Maintain poultry records | * 1. Poultry performance and heath records are entered based on provided recording format   2. Poultry records are maintained according to work place practices   3. Entered poultry records are kept as per farm practices. |

**RANGE**

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

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| **Variable** | **Range** | |
| 1. Feeding tools and equipment may include but not limited to: | * Scoops * Feeders * Waterers * Weighing scales * Buckets |  |
| 1. Prepared may include but not limited to: | * Removing foreign material * Removing spoilt left-over feed * Washing * Drying * Positioning in right pattern and height | |
| 1. Litter maintenance precautions may include but not limited to: | * Repair of leaking roofs * Avoiding spillage * Proper ventilation | |
| 1. Micro climate may include but not limited to: | * Humidity * Temperature * Light * Ventilation/ air flow | |
| 1. Vaccination procedures   may include but not limited to: | * Vaccine constitution * Water deprivation * Vaccine administration | |
| 1. Poultry vices may include but not limited to: | * Pecking * Cannibalism * Egg eating | |
| 1. Performance assessment may include but not limited to: | * Weighing * Physical appearance * Gait * Behavior | |

**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:

* Vaccination
* Observation
* Handling
* Numeracy
* Culling
* Egg handling
* Egg sorting
* Egg grading
* Egg packaging
* Record keeping

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Book keeping
* Egg handling
* Poultry behavior
* Poultry health
* Poultry growth and development
* Poultry handling
* Scales and measurement

**EVIDENCE GUIDE**

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

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| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Fed layers correct type and amount of feed   2. Moderated layers house micro- climate appropriately   3. Maintained litter in good dry condition   4. Observed bio- safety measures   5. Followed vaccination schedule as planned   6. Put in place vermin and predators control measures.   7. Collected, graded, sorted and packaged eggs appropriately   8. Entered and kept records accurate |
| 1. Resource Implications | The following resources **MUST** be provided:   * 1. Assessment location / Layer production farm   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or during industrial attachment. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# MANAGE POULTRY HEALTH AND WELFARE

**UNIT CODE:** **0811 351 05 A**

**UNIT DESCRIPTION:**

This unit specifies the competencies required to manage poultry health and welfare. It involves maintaining poultry biosecurity, acquiring poultry health equipment and materials, managing poultry vaccination and controlling poultry parasites. It also entails managing poultry diseases and vices and maintaining poultry health records.

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **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. Maintain poultry biosecurity | * 1. ***Biosecurity structures and equipment*** are constructed and installed respectively in accordance with the designs and ***poultry production manuals (PPM)***   2. ***Biosecurity measures*** are determined as per farm practice   3. Personal Protection Equipment and Apparel are identified, gathered and donned based on job requirements |
| 1. Acquire poultry health equipment and materials | 1. Flock health management ***tools, equipment, materials*** and ***supplies*** are identified based on PPM guidelines and work place policy 2. Flock health management tools, equipment, materials and supplies are sourced based on PPM guidelines and work place policy 3. Flock health management tools, equipment, materials and supplies are stored based on PPM guidelines and work place policy |
| 1. Manage poultry vaccination | 1. Poultry vaccination schedule developed according to guidelines of PPM, work place policy and disease prevalence 2. Vaccination ***preparations*** are done accordance with PPM and vaccine manufacturer’s guidelines 3. Poultry vaccine is re-constituted according to manufacturer’s guidelines 4. Poultry vaccines are administered in accordance with developed schedule 5. Vaccinated poultry are observed to ascertain vaccine intake and check for abnormal reactions in accordance with PPM and vaccine manufacturer’s guidelines 6. ***Vaccination details*** are recorded as per PPM guidelines and farm policies |
| 1. Control poultry parasites | 1. Poultry flock performance, behavior and droppings are observed daily to detect presence of internal and external parasites as per PPM guidelines 2. Poultry flock is de-wormed to control internal parasites following drug manufacturer’s guidelines 3. External parasites are controlled using guidelines in the PPM 4. ***Parasite control details*** are recorded as per PPM guidelines and farm policies |
| 1. Manage poultry diseases and vices | 1. Poultry showing signs of disease are isolated for further observation per PPM guidelines 2. Qualified veterinary professional is contacted for diagnosis and treatment of sick birds. 3. Poultry are monitored for vices as per farm practice 4. Poultry vices are controlled as per poultry production manuals 5. ***Samples*** are collected for diagnostic laboratory analysis using standard sampling procedures |
| 1. Maintain poultry health records | 1. Poultry health record charts are designed as per PPM 2. Data is entered and monitored daily, weekly or monthly as per the chart 3. Poultry record results acted upon as per PPM |

**RANGE**

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

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| **Variable** | **Range** |
| 1. Biosecurity structures and equipment may include but not limited to: | * Boundary fence (electric or stone wall) * Gate * Entry showers, both at the gate and at the house sites * Foot bathes and vehicle sprayers * Hand washing gadgets * Post mortem rooms * Mortality disposal pits * Rodent and pest control traps |
| 1. Biosecurity Measures may include but not limited to: | * Color coded clothing for different parts of the farm e.g. feed stores, egg sorting and flock houses * Human traffic restriction * Showering * Rodent and pest control traps * Personal protective equipment |
| 1. Poultry production manuals (PPM)   includes but not limited to | * National Poultry Development Programme Manual * Breeder’s manuals by breeders like Cobb and Issa Brown |
| 1. Tools, equipment, materials and supplies may include but not limited to: | * Sprayers * De-beakers * Chicken catching rods |
| 1. Preparations may include but not limited to: | Activities that are carried out before, during and after vaccination;   * Provision of anti-stress nutritional premixes * Feed and water withdrawal * Confirmation of bird numbers to determine dosage * Provision of disinfectant free water * Positioning vaccine receptacles in the poultry house for oral vaccines * Confine and restrain poultry for injectable and ocular-nasal vaccines |
| 1. Vaccination details may include but not limited to: | * Type of vaccine * Type of disease vaccinated against * Age of poultry * Date and time of vaccination * Date of manufacture and expiry of vaccine * Vaccine source and batch number * Route of vaccine administration (IM, wing stab, sub cutaneous, intra nasal, intra ocular or spray) * Number of birds vaccinated * Identification of birds (flock, type, breed) |
| 1. Parasite details includes but not limited to | * Type of vaccine * Type of disease vaccinated against * Age of poultry * Date and time of vaccination * Date of manufacture and expiry of vaccine * Number of birds vaccinated * Identification of birds (flock, type, breed) |
| 1. Samples includes but not limited to | * Swabs * Blood * Feaces * Organs * Feed * Sick bird * Carcass * Water * Vaccines * Litter material * Parasites |

**REQUIRED SKILLS AND KNOWLEDGE**

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

**Required skills**

The individual needs to demonstrate the following skills:

* Animal health applied skills
* Cleaning
* Communication
* De-beaking
* Diagnostic
* Farm equipment operation skills
* Negotiation
* Observation
* Poultry handling and care
* Record keeping
* Vaccination

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Animal health care
* Animal welfare
* Cleaning and disinfection procedures
* De-beaking procedure
* Microbiology
* Mode of disease and parasite spread
* Parasitology
* Poultry behavior
* Poultry biosecurity measures
* Poultry gross anatomy and basic physiology
* Poultry Immunology
* Poultry nutritional disorders
* Procurement procedures
* Reconstitution of vaccines
* Record keeping
* Refrigeration methods
* Sampling procedures
* Signs of ill health in poultry
* Types of cleaning agents, sanitizers and disinfectant
* Types of external and internal poultry parasites
* Types of parasitic poultry diseases
* Types of poultry records
* Types of vaccines
* Vaccination sites

**EVIDENCE GUIDE**

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

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| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Implemented biosecurity measures   2. put in place control measures for internal and external parasites   3. Implemented vaccination program   4. Entered and kept accurate and up to date poultry vaccination / health records |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / Poultry production farm   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Oral questioning   4. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or during industrial attachment. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |

# PRODUCE LAYER FEED

**UNIT CODE:** **0811 351 06 A**

**UNIT DESCRIPTION:**

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

**ELEMENTS AND PERFORMANCE CRITERIA**

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| **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. Acquire poultry feed ingredients | 1. Poultry feed formula is acquired from an animal nutritionist 2. Sources of ***feed ingredients*** are identified based on market forces and acquired formula 3. Feed ingredients are procured based on standard procurement procedures at the work place 4. Feed ingredients are labeled as per regulatory body requirements and / or farm practices 5. Feed ingredients are stored as per work place practice |
| 1. Process poultry feed ingredient | 1. Feed processing machinery is checked to ensure good working condition according to operation manuals 2. Poultry feed processing machinery is operated based on the operation manual and type of feed to produce 3. Feed ingredients are ***processed*** according to feed manufacturing guidelines form of presentation and good manufacturing practices (GMP) |
| 1. Mix layer feed ingredients. | 1. Poultry feed mixing method is identified and selected based on available resources and flock and enterprise sizes 2. Mixing machinery is checked to ensure good working condition and operated based on the operators manual 3. Prepared feed ingredients are mixed as per feed manufacturing guidelines 4. Mixed ration is ***further processed*** according to desired form of presentation and work place regulations |
| 1. Store formulated feed | 1. Poultry feed is placed in food grade packaging materials 2. Feed ration is weighed and weights customized based on market demand and size of packaging material 3. Packaged and labeled feed is sealed according to feed formulation guidelines 4. Packaged feed is labeled as per farm practice 5. Packaged feed is stored as per work place practice. |

**RANGE**

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

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| **Variable** | **Range** |
| 1. Feed Ingredients may include but not limited to: | * Feedstuff * Additives |
| 1. Processed may include but not limited to: | * Drying * Sieving * Grinding * Oil extraction |
| 1. Further processed may include but not limited to: | * Pelleting * Crumbs |

**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
* Computer
* Judging
* Mixing
* Negotiation
* Numeracy
* Operation of feed milling equipment and machinery

**Required knowledge**

The individual needs to demonstrate knowledge of:

* Animal feed processing procedures
* Feed formulation equipment and machine maintenance
* Feed mixing methods
* Forms of poultry feed presentation
* Classes of feedstuff
* Types of nutrients
* Types of feed mixers
* Sourcing of feedstuff
* Pest control
* Poultry behavior
* Storage conditions

**EVIDENCE GUIDE**

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

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| 1. Critical Aspects of Competency | Assessment requires evidence that the candidate:   * 1. Acquired correct formula based on type and age of poultry   2. Processed feed ingredients appropriately according to desired particle size   3. Thoroughly mixed feed ingredients   4. Packaged and stored feed as recommended |
| 1. Resource Implications | The following resources must be provided:   * 1. Assessment location / poultry feed formulation plant   2. Personal Protective Equipment and Apparel |
| 1. Methods of Assessment | Competency may be assessed through:   * 1. Observation   2. Written tests   3. Product analysis   4. Oral questioning   5. Third party report |
| 1. Context of Assessment | Competency may be assessed on the job, off the job or during industrial attachment. Off the job assessment must be undertaken in a closely simulated workplace environment. |
| 1. Guidance information for assessment | Holistic assessment with other units relevant to the industry sector, workplace and job roles is recommended. |